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ABSTRACT

A book-length study described the metacognitive components of good and poor reading ability, with special reference to comprehension. Subjects were 53 Swedish students in grade 5 or 8 and were either good or poor comprehenders as defined by a combination of a reading test and teacher ratings. Data collection consisted of semi-structured interviews and the recall of three texts with different structures. Results indicted that: (1) good readers organized their knowledge and used it appropriately; (2) good readers' cognitive and metacognitive abilities were well integrated, whereas the pattern of functions in poor readers seemed distorted; (3) poor readers were less confident than good readers--they regarded themselves as poor learners and their verbal responses were less elaborate; (4) poor readers' decoding was often not automatic, leaving less capacity for comprehension; (5) the gap between good and poor readers widened from grade 5 to grade 8, as more independent reading was expected of students; and (6) the younger students believed they would improve, the older students lost interest in studies. Findings suggest that poor and good readers differ in the way they process text information and monitor their cognitive functions. (Contains over 200 references in addition to 19 tables and 5 figures of data. Appendixes present the interview questionnaire, examples of categorizations, the texts, and sample student responses.) (RS)

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READING FOR UNDERSTANDING

An empirical contribution to the metacognition of reading comprehension

Ulla-Britt Persson

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Reading for understanding

An empirical contribution to the metacognition of reading comprehension

Ulla-Britt Persson

Akademisk avhandling

som med vederbörligt tillstånd av filosofiska fakulteten vid Linköpings universitet för avläggande av filosofie doktorsexamen kommer att offentligt försvaras på institutionen för pedagogik och psykologi, Eklundska salen, fredagen den 2 december 1994, kl 10.00.

Fifty-three Swedish students in grade 5 and 8 were the subjects of this study. They were either good or poor comprehenders, as defined by a combination of a reading test and teacher ratings. Data collection was made primarily by means of a semi-structured interview; students were also asked to read and recall three texts with different structures. Questions covered text comprehension, reading and general learning strategies, self-concept, awareness of text and cognitive functions, conceptions of learning and reading. Poor and good readers seem to differ in the way they process text information and monitor their cognitive functions. What characterises good readers is their ability to organise their knowledge and use it appropriately. Their cognitive and metacognitive abilities are well integrated, whereas the pattern of functions in poor readers seems distorted - a good cognitive ability is not backed up by an equally good metacognitive or monitoring ability, and vice versa. Poor readers are less confident than good readers; they regard themselves as poor learners and their verbal responses are less elaborate. Often their decoding is not automatic, leaving less capacity for comprehension. The gap between good and poor readers widens from grade 5 to grade 8, as more independent reading is expected. The younger students believe they will improve, the older students have lost interest in studies. Instead they have learned to keep their two lives separate: one in school, one outside.

Indexed: Reading comprehension, metacognition, cognitive monitoring.

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This study started seven years ago as part of a project funded by the National Board of Education. At that time the concept metacognition was rather new in Sweden, and the research team was involved in numerous and lively discussions about its definition. It seemed like a challenge to investigate it from a student perspective, and I soon found out that I had boarded on a very exciting trip into a rich world of thought, not only that of learned scholars, but of school children. Without them and their willingness to share their thoughts with me nothing would have come of this research. I thank them dearly, and their teachers, although most of them would have forgotten me by now.

My search for literature in the field of metacognition brought me to the Center for the Study of Reading at University of Illinois, Urbana-Champaign, where Professor David Pearson was my host. He introduced me to several of his colleagues in the same field, among them were Drs Ann Brown and Joe Campione, whose work became my point of departure.

In 1987 I also took part in a course for reading researchers from the Nordic countries, under the leadership of Professor Ingvar Lundberg, Umeå University. The course was held in Joensuu, Finland. This brought me in contact with a network of people whom it has always been very stimulating to meet, professionally as well as socially. I thank them all: Ingvar, Karin, Ingrid, Åke, Bente, Alfred, Jørgen, Minne, Pekka, Elisa, Ulla, and several others.

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Clare, Michael and Josephine, my children, who are no longer children but young adults involved in their own life projects, are worth special attention at this point. They have had to put up with a mother who was always working. Their love and affection have followed me through some difficult times. Thank you for being such great kids!

Finally, I would like to address someone who has meant a lot for my professional development, Professor Emeritus Eve Malmquist. I met him and started to work for him over 20 years ago. Thanks to him my interest in reading was awakened, he lead me into the international field of research and introduced me to the International Reading Association. By giving me more and more sophisticated assignments he taught me to write. He has remained my friend and benefactor, and as a token of my appreciation I would like to dedicate this thesis to him.

Chapter 1

INTRODUCTION AND AIMS OF THE STUDY

> One reads ... it's very fast. But when you learn to read - you blend the words together. Only inside your head it's very quick, sort of, so it's just one big /mess/. You put the letters together all at once, so that it becomes a word. It's hard to explain. (*You mean that you recognise ...?*) Yes, exactly, you recognise it, that it's a word. If it's a long sentence, that I've never read before, or a big word, I divide it into separate parts like this, and then I get it together. But it's very quick inside your head. (Student 1)
>
> I read quite slowly and often I move my lips, too. I find it hard to get into the text unless I pronounce the words. (*You pronounce them quietly, you mean, so there is no sound, a sort of inner speech?*) Well, you can't see that I move my lips, but it feels like I do. But, in fact, to do like some, just slide your eyes across the page ... then I think you're missing something. You have to listen to the book as well, I mean the language in the book. Sometimes that's very important ... maybe it's a description of scenery that you'd miss. (Student 2)

Two answers to the same questions - *What is reading? What do you do when you read?* - two ways of explaining the reading process. What are the differences between the two answers? Both of these students try to give a technical description of the process, and yet, there is no doubt who is the most skilled reader of the two. Or is there? Let's have a look at these students' further reasoning during the interview:

> (*What do you think about when you read?*) I think about what I'm reading. (*You mean the contents?*) Yes, that's right. (Student 1)
>
> After I've read a certain passage or chapter I think it through. And when I've finished I go through the whole story in my mind, fantasise a bit, make little pictures of it in my head. If something doesn't seem right, I go back to the book and check it out. Then it often turns out to be something I haven't quite understood, so I have to look it up/in a dictionary/. (Student 2)

Taking the age of the two students into account - the first is 12 and the second is 15 years old - it could, of course, be argued that the differences have to do with age. Truly, that sounds plausible, but it would not be sufficient as an explanation. Another fifteen year old argues like this:

> I lie down and read, I read all the letters. (*But what do you think about when you read?*) I don't know - it comes in and goes out and then it comes back when I've finished the book. (Student 3)

The examples above are chosen in order to highlight the main issue of this thesis, namely, what constitutes the differences between a skilled and an unskilled reader, especially concerning comprehension of reading material. It goes without saying, that there are differences in reading performance as measured by tests or school examinations, in reading behaviour as observed in the amount of time and effort students allocate to reading tasks, or in students' reading habits outside school. Such cognitive factors are quite easily observed and registered. There are, however, other factors, not so easily accessible, which may contribute to our understanding of the reading process and of the differences between good and poor readers. These factors are the main objects of inquiry in this thesis.

For the past twenty years these unobservable variables have been referred to as *metacognition*, a term used for instance by Brown (1978, 1981) and Flavell (1976, 1979) to label the super-ordinate functions that keep us aware of our mental/cognitive processes, and also organise, guide and control them (Baker & Brown, 1984a, Campione & Brown, 1979). Reading is one area where metacognition has been and still is the focus of research (e.g., Bråten, 1992, Fahlén, 1994, Garner, 1987). One intention of the work reported here was to study the metacognitive competence of students with high or low reading achievement, mainly as it manifests itself in the students' verbal reasoning.

Reading ability has *external* as well as *internal* implications for the life of an individual and its importance can not be underestimated. The *external* implications have to do with the responsibility of school to foster citizens with functional abilities and skills in areas like reading, writing, mathematics, etc. For the individual the main issue here is to fit into the social pattern of his society. The *internal* implications have to do with the individual's situation in the school system; his success or failure as a student depends to a high degree upon his ability to learn, and, because much school-knowledge is contained in print, upon his ability to learn from texts, i.e., to read. These implications are by no means new, but the notion of reading has been widened in modern society (Jansen, 1991, Malmquist, 1992, Resnick & Resnick, 1977). We now talk about literacy, rather than reading and writing, in order to emphasise this broader perspective. The ability to read has developed from being a question of reading out loud something that was learned by-heart (e.g., catechism, book of hymns), to reading fluently from out of a book, to reading and comprehending unfamiliar and complicated texts, in books as well as on screens.

Although there exists an abundance of research in reading and related fields world-wide (see Weintraub, 1992 for the latest review), many questions in this domain have remained unanswered. One of them is why poor readers without organic or mental disabilities remain poor readers, and in particular poor comprehenders, despite special education and other pedagogical efforts. Various instructional and remedial methods have been tried and some positive results have been obtained. What has been problematic, though, is to acquire long-term and transfer effects of training.

Nevertheless, during the last decade experiments in this area have gained some promising results, e.g., in teaching students general learning skills (Brown & Campione, 1986, Marton, Hounsell & Entwistle, 1984), in teaching students how to learn from text (Brown, Campione & Day, 1981, Palincsar & Brown, 1983, Silvén, 1992), and in training pre-school children's linguistic awareness (Bradley, 1985, Hagtvet, 1988, Lundberg, Frost & Pedersen, 1988). It is interesting to note that most of these recent studies have tapped the metacognitive dimension of an ability: the principles of learning, monitoring of reading comprehension strategies, metalinguistic awareness, etc.

AIMS OF THE STUDY

In view of the research mentioned above, as well as other studies of metacognition and reading comprehension (for an overview, see Garner, 1987), it seemed fruitful to investigate the difference in metacognitive competence between a skilled or "good" reader/comprehender and a less skilled or "poor" reader/comprehender. Knowing in what respects the two groups differ would perhaps enable us to see what is possible to train; in other words, we would learn from the good readers what the poor readers lack and what we could help the poor readers to learn. Most research in the area has concentrated on one or a few aspects of metacognition. The scope of this study has been widened by considering several cognitive and metacognitive variables, such as reading comprehension, recall, strategy use, cognitive monitoring, and awareness of functions, and also by using a variety of methods in both collection and analysis of the data.

The main aim of the study reported here was to describe metacognitive components of good and poor reading ability, with special reference to comprehension, as they appear in the students' own verbal reports, during a combined silent reading and interview session. Fifty-three students in grade 5 and 8 (aged 12 and 15 years, respectively) of the Swedish elementary school took part in the study.

The assumption was that there would be differences in metacognitive functioning between poor and good readers, as well as between the age-groups. Such an assumption has support in earlier studies (see Garner, 1987 for a review). The main reason for choosing these age groups was that very few studies had attended to these groups. Many of the earlier studies in this area, at least in Sweden, had used younger or older subjects, for instance, pre-school children (Dahlgren & Olsson, 1985, Pramling, 1983, 1987b), beginning readers (Liberg, 1987) or adults (Marton et al, 1984, Säljö, 1982). Furthermore, by choosing students in grades 5 and 8 there would be little risk of getting subjects who could not read at all, because focus in the study would be on reading comprehension rather than decoding. As an extra safety measure in the sampling procedure, the teachers were asked to select students who were good and poor at comprehending what they read.

The overall question that constitutes the point of departure for this study is

Assuming that the questions in the interview tap the components of reading comprehension, the metacognition connected with it, and the outcome of learning from text, how do the students differ in this respect as a function of age and level of reading performance?

A number of questions can then be derived from this main question, such as:

a) What conceptions do the students have of cognitive processes like learning and reading, and reading to learn? Are these conceptions related to age and/or performance level?
b) What qualitative differences are there between good and poor readers in study techniques as described by themselves?
c) Do cognitive and metacognitive competencies "coincide" within the individual for the same function, e.g., strategy use and awareness of strategy use?
d) If so, what are the differences between good and poor readers in the use of strategies and in awareness of the use of strategies?
e) Are good readers more aware of differences between texts and text structures than poor readers?
f) Are poor readers inferior to good readers in all aspects of metacognitive competence, or are there areas of metacognition where the case may be reverse?
g) Do the poor readers know that they are "low-achievers", and, if so, do they know why?
h) Are the good readers aware of their superior abilities and how do they relate to them?

The thesis has the following structure:

Chapters 1 to 3 give a theoretical background of the study and some methodological considerations.

Chapters 4 to 11 describe the data collecting instruments, the subjects, and the methods of analysis, and gives an account of the results of the empirical study. Each chapter ends with concluding remarks on the specific topic.

Chapters 12 contains a summary of the conclusions and a general discussion of the results.

Chapter 2

RESEARCH ON READING COMPREHENSION AND METACOGNITION

READING *SKILLS* AND READING *ABILITY* - A BACKGROUND

From reciting to understanding

The first attempts to maintain human ideas in durable alphabetic form were hand-written. They were produced mostly by monks but did not always contain religious material. In Iceland, for instance, they contained folklore - the sagas. When the printing machine was invented and the use of paper[1] made it cheaper and easier to get many copies, the technique gradually spread all over Europe. The usefulness of having access to permanent text became obvious, first of all to the church. A limited number of people were able to decipher text, and it was to remain so for a long time to come. Access to print soon became a matter of power, and it still is, in countries with high illiteracy rates (Malmquist, 1992). However, this is true in any society, in the sense that people who cannot handle written material (e.g., dyslectics) easily get excluded from exercising their human rights, for instance, in education or vocational training (Lundberg, 1994). For those who cannot read the oral tradition is still very strong. Modelled after the skill to tell a story reading aloud developed in to fine art.

> Reading should be brought to the greatest perfection, which will happen in that I teach him to declaim: which means, that the audience not only understand what is said, but that they during the recital also experience the same feeling that the person had who wrote it. (Mathias Fremling, 1804-05, in Kroksmark, 1989, p. 200, this author's translation)

Fremling's perfection of the art of reading was not meant for every child but for the few whose privilege it was to go to school or get private tuition in the home. The notion of Education for All is a rather young one in the history of humankind, in most countries less than 150 years old, even if there are examples of rather high literacy rates - training of literacy skills being the most fundamental part of education, for the purpose of spreading the word of God - as early as in the 17th century, for instance in Sweden and Finland (Johansson, 1977). For the most part public education has followed the industrial and material development of society, and demands on the individuals as well as on the schools as institutions have changed with this development. The changes have also been, and still are, mirrored in literacy requirements. It is not difficult to find evidence of this in the historical records of education or pedagogy, as pointed out by Resnick and Resnick (1977). They identify, in principle, five stages of development in literacy demands, that consecutively have dominated the educational scene:

---

[1] In Iceland manuscripts were written on leather (the finest on lamb or calf skin). When they were discarded some of them were used as patterns for dress-making, as wrapping for food, fire-wood, etc.

- ability to read aloud a simple and well-known passage without any need for understanding
- ability to read a familiar text with some low level of understanding (what is it about?)
- ability to read an unfamiliar text to gather new information
- ability to draw inferential rather than directly stated information from a text
- ability to read a complex text, interpret it and relate it sensibly to other texts or other experiences.

Resnick and Resnick have studied this development from three historical perspectives, Protestant-Religious Education (mainly based on Swedish-Scandinavian data from the 17th century), Elite-Technical Schools (as they appeared in France from the time of the revolution), and Civic-National Schooling (drawn from French and American 19th century sources). The graph in figure 1 illustrates the relation between literacy requirements and the percentage of literates in the populations studied (Resnick & Resnick, 1977). When comparing the development of literacy in the population ("phylogeny") with that of an individual ("ontogeny"), Resnick and Resnick also find that one seems to reflect the other, at least as the individual development is described by Chall (1983), in five stages: initial reading and decoding; confirmation and fluency; reading for learning the new; combining information from different texts; construction of meaning from abstract and complex texts (creative reading).

Literacy "campaigns" did make a difference as to the amount of literate people, but, since expectations were low there is little to vouch for the quality of the people's abilities. Resnick and Resnick claim that up to the time of World War I, public education to a great extent was limited to the first two stages of reading ability, with no demands on reading comprehension, although there were pedagogues all along who advocated teaching methods that would enhance comprehension. This trend can be traced all over the Western world (Chall, 1967). It seems, that not until the emphasis and thus the content of education changed from religious to civic-national did the new ideas of child-centered and interest-oriented education get any impact on schooling.

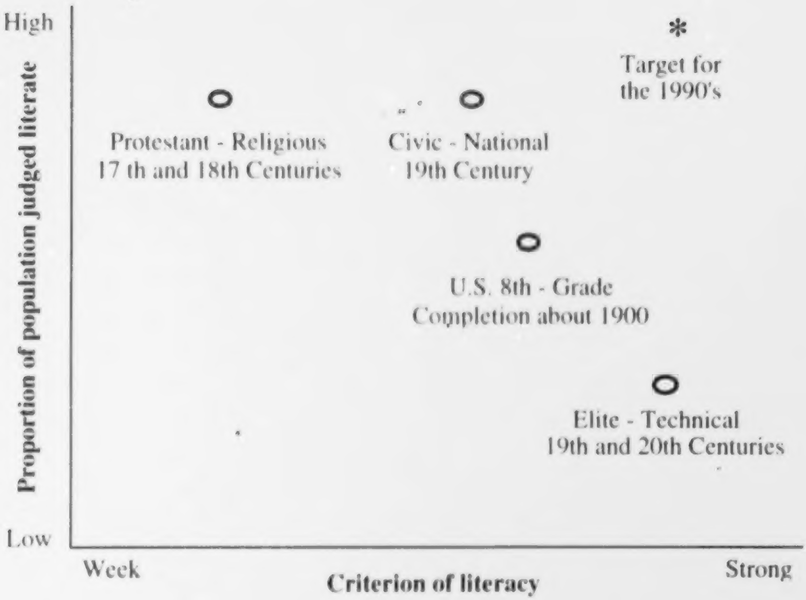

Figure 1. Schematic representation of shifts in literacy standards (from Resnick & Resnick, 1977)

Throughout the 20th century, along with the more advanced technical development in society as a whole, the criteria of sufficient reading abilities have risen, and still no nation can claim 100 per cent literacy rate, despite improved teaching methods and high educational goals for the whole population (Grundin, 1975; Dalby, Elbro, Jansen, Krogh & Ploug Christensen, 1983, Jansen, 1991).

The skill and what it is good for - a constant issue of controversy

As indicated earlier, Sweden has had a high literacy rate since the 17th century, albeit at a low level of proficiency - and, the ability to write was never included. Like in other parts of Europe, higher levels of education were reserved for the elite. So, before Education for All was proclaimed in Sweden, in the Public Education Act of 1842, reading instruction was hardly of any major concern to those responsible for the schools. However, in 1854 the principal of a grammar school in Stockholm published a book about the different ways to teach children to read (Svedbom, 1854). He had studied several experts on the subject from the ancient to the - then - present time and concluded that there were, in principle, three ways to teach reading: the old in Sweden and elsewhere very common ABC or *alphabet* method, which he wanted to be abolished; the *whole-word* method, which he saw as most suitable for languages with a poor letter-sound correspondence, like English or French; and the *synthetic* method, which in Svedbom's opinion was bound to give the best results with Swedish children. Few Swedish teachers - if any - had heard about this new method, originating on the continent, probably first as an improvement of the ABC-method. In his book Svedbom gave a detailed description of this "phonic" or synthetic method, with several illuminating examples, but the objectives were still, as was indeed pointed out in the general school regulations, to teach children to read known texts, e.g., catechism, aloud without much concern for deeper comprehension. The method was later introduced in teacher training and recommended for use in the schools. In the years to follow it gradually replaced the alphabet method as the most common way to teach children to read in Swedish schools. In various forms - and with contributions from whole-word and other more content-related methods in later years - it has remained so, at least until the 1970's (Lindell, 1980).

A few years into the 20th century, the first professor of education in Sweden, Bertil Hammer was very concerned with the poor reading instruction in the Swedish schools, with the alphabet method still prevailing at that time. He tried to introduce another new method, which he himself had developed (Hammer, 1906), much inspired by the *sentence* method, tested and described by Farnham in America in the 1870's[2]. Being a strong proponent of more meaningful instruction in the schools, instead of the spiritless "babbling" and endless repetition, Hammer called his method the *interest* method, because it would take as its starting point phenomena, words, and concepts that were meaningful and of interest to the children. It would also take advantage of the good ideas in other known methods of instruction.

> ... away with all 'standardised methods', away with all 'principles' except the only one to try to consider at every point the nature and the interest of the pupil. The method thus arrived at could be called simply the 'interest method', if a name is necessary. Its characteristic is that it tries to absorb the good out of all methods without obsequiously confining itself to any of them; its goal is to change learning to read into a natural and entertaining activity for the seven-year old. (Hammer, 1906, quoted in Persson, 1989, p. 13, this author's translation)

Hammer's ideas were as much a reaction against the dull and out-dated content of the school-books as an attempt to renew and develop instructional methods, and he published a first reader as well as a manual for teachers, based on these ideas. However, he was far ahead of his time, his method was too radical and did not gain much success.

It seems as if the debate - and the development - in this respect has run very much parallel in different parts of the world (Ollila, 1981, Adamik-

---

[2] Both Hammer (1906) and Huey (1908) claimed that the sentence method originated from Comenius, as an improvement of the "word method" he had presented in his Orbus Pictus.

Jázsó, 1990). One of Hammer's contemporaries in the USA, Huey, published his own and other pedagogically minded scientists' research experiences in 1908 in a monograph, The Psychology and Pedagogy of Reading, a book which still could be used as an introduction to the theories of reading and their pedagogical implications (second publication by MIT Press, 1968). Huey gave a rather extensive account of research, in areas such as visual perception and eye movements, inner speech, reading speed, interpretation of what is read, and the nature of meaning. Although he was a strong proponent of an emphasis on meaning he did not deny the importance of phonology, but he advised teachers to wait until the children were at least nine years old before introducing the "systematic learning of the sound-equivalents of all letters" (Huey, 1968, p.354). Admittedly, he also found it probable that a "nearly phonetic" language such as German would be better suited for letter-sound mediation in reading, than the "unphonetic English". The meanings of unfamiliar words are usually inferred from the text, claimed Huey, but it may sometimes be necessary to use phonological analysis (or "phonics") for the pupils to learn to master new words (ibid., p. 351).

Apart from this, Huey also presented a comprehensive overview of different methods to teach reading, in principle the same as those described by Svedbom and Hammer, representing either part-to-whole or whole-to-part approaches. For 150 years this has been a seed of dissension in reading instruction, whether to start with *the parts*, such as sounds or phonemes, applying a *phonics* approach, or with *the whole*, such as words, sentences or other meaningful units or graphemes, thus applying a *meaning-emphasis* approach[3]. Focus has been on different single methods on each side at different points in time, when the debate for some reason or the other has intensified, but the core of the matter has remained basically the same - is reading taught best "bottom-up" or "top-down"? So far, however, it seems as if most discussions have been resolved in a mutual "you can't have one without the other"-statement, without any of the opponents really changing sides; i.e., they maintain their ideas as to *what should come first*. Let two statements from different times verify this:

> The /sentence/method goes famously at first, like the word method, and naturally gives more "legato" reading than does the latter; but it breaks down when the child attempts to read new matter for himself, so the teachers commonly say. Hence, the sentence method, too, is

---

[3] "Phonics approach" is used here to signify all different reading instruction methods that take decoding of letters/sounds as *a starting point*, as opposed to a "meaning-emphasis approach", a term which signifies all methods that *start* with derivating meaning from text (Harris & Hodges, 1981: A Dictionary of Reading). The many variations of each approach are not dealt with here. The reader is referred to Huey (1908, 1968) or Dalby et al (1983) for reviews.

> usually combined with or supplemented by phonics. (Huey, 1908/1968, p. 274)

> ... there is no such thing as a pure phonics or pure look-and-say reading scheme; schemes simply differ in the relative emphasis they place upon phonic skills and the development of sight vocabulary. (Ellis, 1984, p. 94)

Methodological discussions have been closely linked to the different ways in which the reading process has been studied and described. So, depending on what theoretical perspective you hold you will get a different set of pedagogical considerations to base your teaching model on. Although there is no denial that reading is a product of decoding *and* comprehension (Ellis, 1984, Goodman, 1976, Høien & Lundberg, 1992, Malmquist, 1989, Smith, 1982), the fact remains that there are two major viewpoints as to how reading ability is achieved. The *phonics approach* contains the main idea that it is possible to postpone the establishment, within an individual, of a stable relationship between decoding and reading comprehension until the relations between sounds and letters are properly mastered, or automatised, whereas the main point of the *meaning-emphasis approach* is that decoding and comprehension can not be separated in time and space, or if anything is to take the forefront, meaning precedes decoding - alas, without "meaning" there is no reading (Huey, 1968). Paradoxically, in practice, both routes seem to work! Or neither works - as the case may be (Chall, 1967). It would, however, only be fair to say, that both sides have a tendency to misunderstand each other. Witting (1987) points out, that some of the strongest proponents for a "clean" meaning-emphasis approach build their arguments on a conception of "comprehension" as "reading comprehension" only. In fact, she says, there is much more to understand, or comprehend, about the reading process than mere content. To be actively involved in the reading process the students have to understand *everything* about that process, including such abstract phenomena as phonemic analysis and letter blending (Witting, 1987, p. 118), i.e., they have to possess at least some metacognitive abilities.

These major perspectives could also be linked to theories of metacognition. For instance, concepts such as phonological, linguistic and metalinguistic awareness fit well with a phonics approach (Bradley & Bryant, 1983, Lundberg, 1984, Lundberg, Frost & Pedersen, 1988, Tornéus, 1983), whereas metacomprehension, metamemory, and "general" metacognition are concepts that could be linked to a meaning-emphasis approach (Garner, 1987, Pearson & Gallagher, 1983, Tierney & Cunningham, 1984). However, most metacognitive research has not been concerned with the different approaches to the teaching of reading; rather it has treated reading as *one* of several mediators of metacognitive activity. In other words, since metacognition can hardly be studied as an independent entity, reading is used as the "object" upon which the person is reflecting, or practising his metacognitive knowledge and control. Reading has also been used as a mediator in different attempts to train metacognitive abilities (e.g., Palincsar & Brown, 1983), alongside with cognitive functions such as those involved in memory, learning, problem-solving, mathematics, etc. (Borkowski, 1985, Brown & Campione, 1986, Flavell, 1976, Resnick & Ford, 1984).

Another rather recent development in theories about the achievement of reading and writing abilities is the concept of *emergent* or *emerging literacy* (Hagtvet, 1988, Teale & Sulzby, 1989, Ashworth, 1992), a concept which can be traced in studies of early - and often spontaneous - reading and writing[4]. It has a social-interactionist flavour, based on the assumption that literacy is not developed in isolation but in "real life settings in which reading and writing are used to accomplish goals" (Teale & Sulzby, 1989, p. 3). Further on in this exposé of research we will look closer into this perspective with its roots in the theories presented by Vygotsky and other psychologists of the "cultural-historical school".

READING COMPREHENSION AND METACOGNITION - PREVIOUS RESEARCH

In the following account of previous research into reading comprehension and metacognition the focus will be on studies of text structure, reading comprehension, and awareness and monitoring of cognitive functions. I will, however, include research in other areas of metacognition as far as they relate to the core of my study. Thus, the recent developments in activity theory (Lave, 1988, Rogoff, 1990, Wertsch, 1985a, 1985b) will be mentioned, as they relate to the concept of guided learning (Brown & Palincsar, 1986, 1987), which is an important component in the training of cognitive and metacognitive strategies. Some research about text structures (e.g., Hasan, 1984, Kintsch, 1974, Meyer, 1975, 1984), which largely belongs to disciplines like linguistics and literature studies, will also have a place in this section.

An attempt to list the different functions involved in reading can be found in table 1. The table does not indicate relations between the different functions - they are very much intertwined and interdependent - it is merely intended as a "list" of the field of reading to demonstrate its complexity and to assist us when going through some of the huge amount of research that has been carried out in this field.

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[4] E.g., Bissex, G.L. Gnys at wrk: A child learns to read and write, Cambridge, MA: Harvard University Press, 1984; Clark, M.M. Young fluent readers, London: Heinemann, 1976; Söderberg, R. Reading in early childhood: A linguistic study of a pre-school child's gradual acquisition of reading ability. Washington DC: Georgetown University Press, 1977.

Table 1. Cognitive and metacognitive functions involved in reading

FUNCTIONS IN READING	
Perception	visual decoding phonological decoding
Memory	long-term storage retrieval cues working memory lexical access
Cognitive knowledge	factual prior knowledge prior experience knowledge about print and language rules vocabulary knowledge and use of reading strategies
Linguistic awareness	phonology language patterns syntactic rules
Text awareness	literary genre text structure figurative language, metaphors etc.
Self awareness	self-concept own ability and knowledge own cognitive functioning
Monitoring	planning and predicting learning strategies decoding and comprehension strategies purpose of reading evaluation

It may seem as if reading is a "private business" between the reader and the text. However, behind every text is a writer with certain intentions, who uses the text as a means to communicate a message, and for a particular purpose; the reader brings into the reading process his own intentions, his own purpose, which do not have to coincide with the writer's. The reading task is set by the particular situation, in which it takes place, e.g., in school reading mainly has an educational purpose, at home it has - homework aside - a recreational purpose (Greaney & Neuman, 1990). In the school setting several persons are present, who are involved in the same or similar tasks (Glazer & Brown, 1993); reading is learned in interaction (Coles, 1992, Strickland & Morrow, 1989); pre-reading activities are carried out in groups (Hagtvet, 1988, Holdaway, 1979); group discussions are used as an instrument in reading comprehension instruction (Brown & Palincsar, 1986, Hill, 1992), etc. Similarly, in the home reading may be practised in interaction between the parents and the child (Griffiths & Hamilton, 1984). In other words, reading, like most human cognition, is an ultimately social activity which takes place in a socio-cultural context (Francis, 1982, 1988). Thus, the functions inherent in reading are "floating about" in a social space where they coincide in different constellations depending on what social practice, or context, the individual is involved in at a particular time.

There exists an abundance of theories and models of the reading process emanating from different research fields, such as information science, semiotics, psycholinguistics, cognitive psychology, and education (Dalby et al, 1983, Pearson, 1984, Singer & Ruddell, 1985), and, consequently, focusing on different parts of the reading process. This has, no doubt, helped us not only to realise how complex an activity reading is, but above all to explain why and where in the process deficiencies can occur. The models can be defined as either *bottom-up* (step-wise, with *decoding*, or "phonics" as the vantage point and comprehension as the end result), or *top-down* (with *comprehension* or *meaning-emphasis* as the point of departure and decoding as one "check-point"), or *interactive*, built on and demonstrating the complex nature of the reading process (e.g., Richaudeau, 1985, Ruddell & Speaker, 1985, Stanovich, 1980).

One of the reading-process models most frequently used in later years, is the *interactive-compensatory model*, as suggested by Stanovich (1980). This model is *interactive*, because it describes reading as based on "information from several knowledge sources" (perception, orthography, lexicon, syntax, semantics, etc.) (ibid., p. 35), and *compensatory*, because it assumes that "a deficit in any knowledge source results in a heavier reliance on other knowledge sources, regardless of their level in the processing hierarchy." (ibid., p. 63). In other words, when decoding or word identification fails, the reader can use context or cognitive strategies, or vice versa, to complete the reading process. It should be noted, however, that the emphasis in this model is on bottom-up processing.

Comprehension - search for meaning or construction of meaning?

The early decoding models, or theories, were not intended to describe "higher" mental processes (e.g., interpretation, inference making) involved in reading; they went as far as postulating a semantic store, a *lexicon* in short term memory, as part of the word recognition and identification system. Høien & Lundberg (1992) claim, that there are, still, too many unknown facts about our syntactical and cognitive competencies for us to be able to draw a complete map of the entire reading process. Nevertheless, some attempts have been made (Stanovich, 1980; Samuels & Kamil, 1985), which can be summarised in this way: the reader's cognitive, perceptual and emotional resources interact with text features to result in the reader's construction of meaning (Yopp & Singer, 1985, p. 137).

Theories of reading that focus on the comprehension processes are as numerous and diverse as those depicting the decoding processes. Apart from the "pure" top-down models (e.g., Goodman, 1976, Smith, 1982), whose value today is mostly historical, and the interactive models (e.g., Stanovich, 1980) there are semantically driven models that particularly focus on the reader's resources, in terms of *cognitive schemata* (Anderson & Pearson, 1984; Anderson, 1985) - in some cases referred to as "prior knowledge" (Langer, 1982, Afflerbach, 1987); word recognition or identification (Gough, 1985); interpretation capacity (Svensson 1985), etc., as well as text driven models or theories primarily concerned with linguistic and syntactic *features of the text*, i.e., text structure (e.g., Kintsch, 1974, Meyer, 1975) or story-grammar (Rumelhart, 1980). Theories of text readability could also be referred to this category[5].

According to Pearson (1985a) reading comprehension research has developed during the 1970s into three major streams; one concerned with human knowledge structure, the other with text structure, the third, and most recent one, with metacognition. In the following I will discuss some studies within these three veins.

Theories based on the reader's knowledge structure

In their description of schema-theory Anderson & Pearson (1984) date it back to Gestalt Psychology on one hand and Bartlett on the other, but they also mention contributions from Ausubel's concept of meaningful learning, as well as precursors in reading theory such as Edmund Burke Huey and William S. Gray[6]. Not until in the late 1970's, however, did schema-theory find proper applications in reading comprehension, e.g., in the works of Anderson (1978) and Rumelhart (1980). According to Anderson & Pearson (1984) a schema is "an abstract knowledge structure" - it is abstract while it "summarises what is known about a variety of cases that differ in many particulars"; it is a structure, because it "represents the relationships among its component parts" (ibid., p. 259). Using the same terms as Piaget[7], they point to the fact that schemata are used in two ways: for *assimilating* information (i.e., add new information to what we already know) and for *accommodating* information (i.e., to modify old knowledge in accordance with new, relevant and plausible information). In addition, as pointed out by Bransford (1985), it is important to distinguish between schema *activation*, whereby existing schemata - for abstract concepts, for particular cases, or general categories, as the case may be - are used to interpret the world, and schema *acquisition* or *construction*, the process in which new knowledge is developed. Pichert & Anderson (1977) further use the term *script* (see footnote 8) for a set of schemata that the reader mobilises in assimilating and recalling information from text. Schema-theory has been used throughout the 1980's in research and practice in regard to development and teaching of reading comprehension (Pearson & Spiro, 1982; Pearson & Gallagher, 1983). Furthermore, the inspirational sources of schema-theory are much the same as those of one of the most current contributions to our knowledge about reading, *metacognition*.

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[5] For a rewiev see Klare, G.R. Readability. In Pearson, 1984.

[6] Gray, W.S. (1948). On their own in reading. Glenview, Ill: Scott Forseman.

[7] Piaget also uses the term *schema*. However, Piaget's concept has a slightly different meaning from that of Anderson & Pearson, and Rumelhart. It is linked to his theory of stages of child development.

As mentioned earlier, several studies of reading comprehension have used the term "prior knowledge" in relation to what the reader knows of the topic which he is to read about. It has been found (Pearson, 1985b) that prior knowledge of topic is a better predictor of reading comprehension than scores on intelligence tests or tests of reading achievement. Afflerbach (1987) studied expert readers' construction of main ideas in a text. Processing was automatic for readers with high prior knowledge for the text, whereas de-automated, deliberate processing was required when the reader's prior knowledge was low, leaving less mental capacity for construction of main ideas. In a study by Stahl, Jacobson, Davis & Davis (1989) preteaching of relevant information about an unknown topic was found to facilitate comprehension of the text. It seemed particularly helpful in selecting important information for recall.

However, "prior knowledge" may also be used to label all kinds of knowledge that the reader brings into the reading situation, such as linguistic, semantic, conceptual, and social knowledge, as well as knowledge about text structure and the reader's familiarity with text (Adams & Bruce, 1982; Langer, 1982, Ruddell & Speaker, 1985)[8]. Martin & Leather (1992) mention four types of experiences that the reader brings into the reading process: personal life, cultural life, literary, and linguistic experiences. Several researchers have demonstrated how important textual and contextual knowledge is for the comprehension process. Bransford & McCarrell (1974), among others, argue that the meaning of a sentence does not equal the sum of the meaning of its component words. A word is rarely understood in isolation but rather in relation to other words in the sentence, in the same way as:

> ... our perception of the world is rarely confined to identification of an individual object in isolation, but instead includes perception of an object's role in events. (ibid., p. 190)

For example, in my mind a lonely chair in a room may mean a scene in a theatric play, a house where people are moving in or out, or a room used for some kind of strange psychotherapy, all depending on my prior knowledge of similar situations. In the same way, if one word is uttered, and the context is not clear, I may get confused at first but then tend to create a likely context, in which to interpret the utterance, based on how familiar I am with the word, the different contexts in which it may occur, and its relations to other words. The same applies to comprehension on sentence level, as has also been demonstrated by Bransford & McCarrell (1974). This kind of mental *imagery* has been the object of study by philosophers, as well as linguists and cognitive psychologists, and it has been used in experiments in teaching reading comprehension (Tierney & Cunningham, 1984).

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[8] In cognitive psychology, and especially in studies of memory, the term "script" has been used to denominate the prior knowledge a person possesses about a certain situation that involves some kind of communication and comprehension. The term was first used by Schank & Abelson, (1977). Scripts, plans, goals, and understandings. See e.g., Bower, Black & Turner, (1979). Scripts in memory for text. (Reprinted in Singer & Ruddell, 1985) and Samuelsson (1993).

It is worth pointing out that the reader's knowledge structures are not fixed once and for all, they are dynamic entities. When all goes well, any new information derived from a text will be integrated into the reader's existing schemata, or knowledge structures, and activated as background information for the next text, etc. (Pearson & Tierney, 1984). This is why I may comprehend a text today which only a year ago was quite incomprehensible - more knowledge has been added to what I knew previously (through reading or other means), some of my knowledge may appear differently, or perhaps my attitude to the topic has changed. Such experiences are going to enhance my comprehension when I return to the text.

Theories based on text structure

In the 1970's the study of different text structures as antecedents of reading comprehension also became rather intense. Originating in the classical rhetoric's of Aristotle and Cicero, on one hand, and 19th and early 20th century attempts to classify folklore on the other (Meyer, 1984), several theories of text structure emerged within linguistics, psychology and psycho-linguistics, and educational researchers soon tried to discern possible pedagogical consequences from the theories. Different taxonomies to be used in evaluation and selection of reading material were constructed (review in e.g., Calfee & Curley, 1984), and several volumes have been published with applications of theories of text structure for the classroom (e.g., Langer & Smith-Burke, 1982, Flood, 1984a, Flood, 1984b). Case grammar, propositional analysis, cohesion, structural analysis of prose, and story grammar are the most well-known examples of such theories (Tierney & Mosenthal, 1982, Beach & Appleman, 1984, Marshall, 1984, Meyer & Rice, 1984, Pearson, 1985a). In a sense, the structure or "grammar" of text is bridging the gap between the author and the reader - it may be a firm and stable bridge which carries the reader across troubled waters (structure, ideas, and intentions are clear) or it may be a shaky and partly broken bridge with many pitfalls (obscure structure, ideas poorly presented, lack of cohesion). Tierney & Mosenthal (1982) summarise this bridge between discourse production and discourse comprehension in a figure (fig 2). Text grammars are usually hierarchically arranged according to type of discourse or genre (i.e., in the "text" column in fig 2). Types of discourse are, for instance, narrations, lyrics, directions (instructions), persuasion (e.g., advertisement), and exposition (Marshall, 1984). This constitutes the *top level* of any hierarchy, be it linguistically or content based.

Linguistically, paragraphs represent the *middle level*, and sentences the *bottom level* (Meyer & Rice, 1984). In a *content structure* (Meyer, 1984) the main ideas or the gist of the text would be organised on the top level, whereas supporting details are organised on the middle level, and specific details on the bottom level.

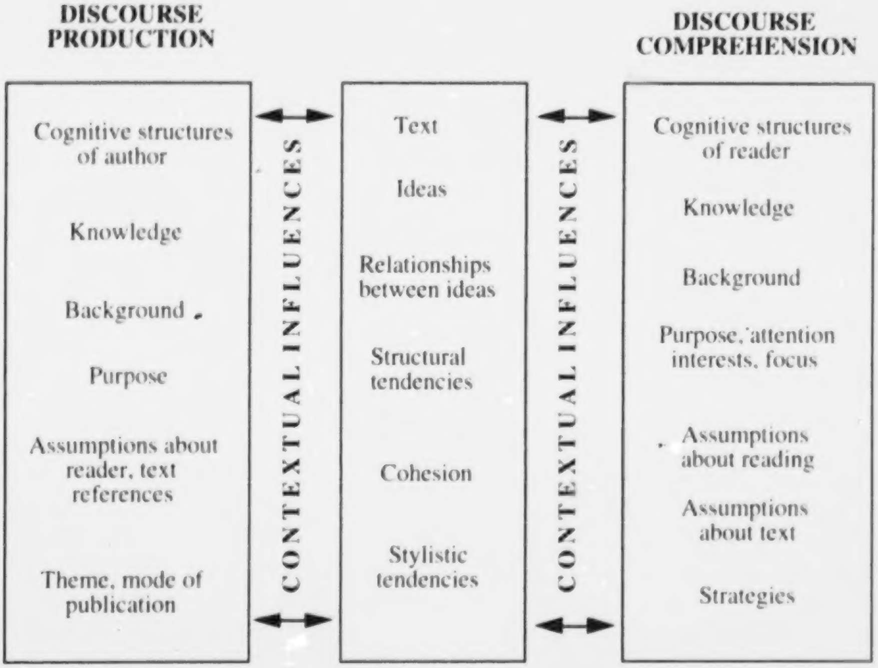

Figure 2. *The nature of author, text, and reader relationships during discourse production and discourse comprehension (From Tierney & Mosenthal, 1982)*

Having stated that all human discourse is built on both form and function Marshall (1984) argues that there are two ways to organise information in written *form:* by temporal sequencing and by topic; and that the primary reasons for (the *functions* of) communicating in writing are to affect the reader's emotions (as in narrations and lyrics), his behaviour (as in directions and persuasion, such as advertisement), or his knowledge (as in temporal or topical expositions). Consequently, the fact that there are six different types of discourse, will have practical implications for the teaching of reading comprehension (Ringler & Weber, 1982, Beach & Appleman, 1984, Meyer, 1984, Pearson & Tierney, 1984, Tierney, Mosenthal & Kantor, 1984, Harrison & Coles, 1992).

Meyer's system of prose analysis (1975, 1984) has been used predominantly to assess and analyse different kinds of exposition. It results in a detailed outline (or a "tree structure") of how the text content is organised, indicating relations of text elements on different super-ordinate - subordinate levels. In her system Meyer presupposes that there are five rhetorical relationships which organise propositions and give a text its top level structure: *causation* (antecedent/consequent), *comparison* (analogy, alternative, adversative), *collection* (e.g., sequence of events, temporal order), *description* (attributes, specifics, explanations, settings), and *response* (remark/reply, questions/answer, problem/solution). At a lower level, by using explicit statements (preview, summary, evaluation) or cohesive elements, like conjunctions and referents (Hasan, 1984), the writer signals intentions and relationships in the text, which may help the reader to comprehend the text.

Story grammar analysis likewise may result in a tree structure, a hierarchy of interrelated elements. It seems that young children as well as adults utilise some kind of story grammar even without being explicitly taught (Tierney & Mosenthal, 1982, Meyer & Rice, 1984), but story grammar analysis has been proved a useful device to aid children in understanding of narration and in writing of new stories. Much of the research in this vein, as is the case with schema-theory, is based on memory-and-recall studies emanating from Bartlett's research in the 1920's and 30's[9]. As for story grammar[10], Thorndyke and Rumelhart seem to be most commonly referred to. However, this line of research reached its peak in the 1970's and 80's, and has since then given way to other trends in reading research, for instance "the reader-writer connection" (Hansen, 1988, Pearson & Tierney, 1984, Spivey & King, 1989) and a concern with the social context of reading (Clay, 1991, Kantor, Miller & Fernie, 1992, Myers, 1992, Teale & Sulzby, 1989).

Comprehension - search *and* construction of meaning

The relationship between textual analysis, as represented by, for instance, propositional analysis or story grammar, on one hand, and schema-theory on the other, is evident, they are the two sides of the same coin. On the text side of the coin, for instance, story grammar describes how the text is organised into setting, episode, event, reaction, etc., and how they relate to each other semantically; on the reader's side of the coin the focal point of schema theory is, what is stored in the reader's mind before, during and after reading. Or, schema theorists attempt to describe organisation and control of the reader's knowledge, while text analysts try to describe what meets the eye and what is behind it. It is in this meeting that comprehension occurs (Rumelhart, 1985).

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[9] Bartlett, F.C. *Remembering*, 1932.

[10] Thorndyke, P.W. Cognitive structures in comprehension and memory of narrative discourse. *Cognitive Psychology*, *9*, 1977; Rumelhart, D.E. Notes on a schema for stories, in Bobrow & Collins (Eds.) *Representation and understanding*, 1975.

Returning to the question whether reading comprehension is a search for meaning or a construction of meaning, one could conclude that theories concerned with text structure presuppose that comprehension is a search for meáning (the reader gets the necessary clues primarily from the text), whereas theories concerned with human knowledge structure presuppose that comprehension is construction of meaning (the reader constructs meaning from a combination of prior knowledge and the content and structure of the text). There is, of course, a difference in the semantic content of the words "search" and "construction", the latter having more of a connotation of creativity and wilfulness, which may be deceptive. However, to make this kind of distinction would be inappropriate, because the two sets of theories are complementary rather than contrary, and the main difference between them is the focal point (the text or the human brain). The question, then, is purely academic. Combining the two perspectives would result in the following conclusion: the reader is scanning the text for clues that help him navigate towards understanding, and without some prior knowledge of words, syntactic and semantic rules, writing conventions, as well as the topic, there will be very little meaning derived or constructed (Kintsch, 1974, Pearson & Tierney, 1984). The latter conclude that:

> The thoughtful reader ... is the reader who reads as if she were a writer composing a text for yet another reader who lives within her. (Pearson & Tierney, 1984, p. 144)

In his account of the research in reading comprehension until the early 1980's Pearson (1985a) excogitates the "future history" of reading comprehension and claims that

> Schema-theoretic and text-analysis traditions will merge so as to become indistinguishable from one another. This event will result from our discovery that the goal of every author is the same as the goal of every reader - to represent knowledge in as coherent a framework as possible. (ibid., p. 31)

Comprehension and reading strategies have remained important issues of inquiry after 1985, but the interest seems to have shifted in the direction suggested by Pearson. As can be seen in scientific and professional journals, several comprehension studies in later years have integrated text variables and cognitive variables (e.g., McKeown, Beck, Sinatra & Loxterman, 1992, Bloome & Egan-Robertson, 1993). This integration is also noticeable in metacognitive research.

Metacognition - thinking about thinking

Ever since the term *metacognition* first came into use in the 1970's[11] it has been under constant debate. As is the case with many concepts pertaining to human mental activities, it has been difficult to find a proper definition. Several collections and surveys of different perspectives and definitions of metacognition have been made and its relations to mental activities like learning and reading have been investigated (Baker & Brown, 1984a, 1984b, Bråten, 1991a, 1991b, 1992, Fahlén, 1994, Garner, 1987, Pramling, 1987a). Although most researchers in the field seem to agree that metacognition should denote a "second order perspective"[12] of brain functions, there are some who claim that metacognitive competence is comparable to any other cognitive competence. Long before the introduction of the term, however, psychologists were concerned with mental functions beyond the observable (in a broad sense), e.g., Huey, Dewey, Piaget, Vygotsky, Bruner. References to these, and others, can be found in most of what has been written in this area (e.g., Baker & Brown, 1984a, Fahlén, 1994, Garner, 1987, Pramling, 1987a). Bråten (1991a, 1991b, 1992), for instance, claims that Vygotsky is the precursor of metacognitive theory. In Vygotskian theory of cognitive development great importance is given to language (Dixon, 1987, Wertsch, 1985a, 1985b), and to the individual's ability to understand and verbalise his own cognitive functioning, which includes self-awareness as well as self-regulation.

Brown (1982) brings us back to Binet, in her claim that "three of Binet's general factors, direction of thought, auto-criticism, and invention, are very similar to current metacognitive features of learning", as well as to Spearman and his three principle components of intelligence; "1) educing relations, 2) educing correlates, and 3) self-recognition or the apprehension of one's own experience" (Brown, 1982, p. 30). Spearman in his turn dates the concept of "cognizing of cognition" back to Plato and Aristotle. Many of these early writers argued that what we now call "metacognitive skills" are essential elements of intelligence; in other words, they would probably have agreed with those who claim that "metacognition" is part of "cognition", or at most a higher order of cognition, that is, a feature of our "thinking power" or intelligence.

In an attempt to separate metacognition from cognition Slife, Weiss & Bell (1985) studied regular and learning disabled elementary school students during a problem solving task in mathematics. Matched for relevant cognitive abilities, including intelligence and maths achievement scores, the two groups differed in metacognitive functioning. The learning disabled students (who were older than their matched counterparts) were less accurate in predicting their performance and less sensitive as to identifying their own correct or incorrect solutions than were the regular students. Slife et al conclude that knowing how to solve a problem (a *cognitive* ability) is a different skill from knowing that one knows how to solve a problem (a *metacognitive* ability). In this sense learning disabled students resemble young children (below the age of 5) who often do not know what they know or do not know, or how they get to know (Pramling, 1987b), because, as Brown and others have claimed, this is a late developing function (Brown, 1981, Brown & Reeve, 1986).

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[11] It was introduced by Flavell in Developmental studies of mediated memory, in Reese & Lipsitt (Eds.) *Advances in Child Development and Behaviour. Vol. 5,* 1970.

[12] The term "second order perspective" is used in phenomenographic research which aims at "describing people's experience of various aspects of the world" (Marton, 1981). Bråten (1991a) refers to Chi in Weinert & Kluwe (Eds.) *Metacognition, Motivation and Understanding* (1987) and her argument that knowledge must be second-order (e.g. rules about rules) to deserve the term "meta".

Borkowski (1985) treats metacognition as a component of intelligence. His vantage point is a theory of intelligence presented by Campione and Brown (1979) in their research with retarded children. Their theory postulates a two level structure:

- the *architectural system*, which includes capacity, durability, and efficiency in relation to memory functions (memory being an important part of intelligence),
- the *executive system*, with the following components: knowledge base, control processes, schemes, and metacognition.

Brown and her associates have tried to single out metacognition and make it the object of inquiry, using problem-solving, mathematics, or reading as mediators. Several attempts have also been made - by Brown as well as Flavell and others - to find an acceptable definition of the concept. One essential point of argument has been whether metacognition is *specific* for each domain (i.e., each cognitive domain has its "own" meta-level: one for memory, one for problem-solving, one for reading, etc.) or *general* for all domains (i.e., the meta-level is relatively independent of domains and cuts across all cognition). Brown & Reeve (1986) argue that some degree of domain generality must be assumed if at all there is any sense in talking about metacognition as a global concept. They then go on to describe four kinds of activities mentioned as metacognition; a) *self-correction*, b) *access to thought*, c) *knowledge of thought*, and d) *mental experimentation*. Assuming that only those functions that are open to reflection are metacognitive some self-correction falls "below the line", because it goes on unconsciously - even small children may make corrections of their own linguistic errors without actually being aware of it. As regards access to and knowledge of thought it is rather easy to observe that these functions are not common among small children. For mental experimentation (the actual, conscious monitoring of thought processes) the same applies - it is late in developing - which was also observed by Piaget, who placed this higher order thinking in his "stage of formal operations" at the age of eleven to twelve years.

Flavell (1979) in the same way states that young children are limited in their knowledge and reflection about different cognitive functions. He also mentions four classes of knowledge; a) *metacognitive knowledge*, b) *metacognitive experiences*,[13] c) *goals or tasks*, and d) *actions or strategies*, and assumes that metacognitive knowledge and experiences differ from other kinds of knowledge stored in long-term memory only in content and function, not in form or quality. Pertaining to problem-solving Flavell (1976) holds that metacognition:

> ... refers to one's knowledge concerning one's own cognitive processes and products or anything related to them, e.g., the learning-relevant properties of information and data. For example, I am engaged in metacognition (metamemory, metalearning, metaattention, metalanguage, or whatever) if I notice that I am having more trouble with learning A than B; if it strikes me that I should double-check C before accepting it as a fact; if it occurs to me that I had better scrutinise each and every alternative in any multiple-choice type task before deciding which is the best one; if I become aware that I am not sure what the experimenter really wants me to do; if I sense that I had better make a note of D because I may forget it; if I think to ask someone about E to see if I have it right. Such examples could be multiplied endlessly. In any kind of cognitive transaction with the human or non-human environment, a variety of information processing activities go on. Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective. (Flavell, 1976, p. 232)

According to Brown (1980) metacognition:

> ... refers to the deliberate conscious control of one's own cognitive actions. This distinction between knowledge and the understanding of that knowledge (in terms of awareness and appropriate use) has become of special interest to the developmental psychologist. (ibid., p. 453)

Brown (1978) has also summarised metacognitive processes as including; 1) analysing and characterising the problem at hand, 2) reflecting upon what one knows or does not know, 3) devising a plan for attacking the problem, and 4) checking or monitoring progress. These processes seem to cut across all cognitive domains. In this context it is important to note the difference between *making* progress and *keeping it going*, as Flavell (1979) points out: cognitive strategies are invoked to make cognitive progress, metacognitive strategies are invoked to monitor progress. Armbruster, Echols & Brown (1982) want to make yet another distinction, that between a *technique* and a *strategy*: a technique becomes a strategy only if it is used wilfully and strategically, i.e., one needs the metacognitive knowledge of when, where and how to use the techniques to advantage before it becomes a strategy.

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[13] Flavell mentions as an example: "the sudden feeling that you do not understand something another person just said" (Flavell, 1979, p. 906).

Evidently, both Flavell and Brown make a distinction between *metacognitive knowledge*, or "knowledge about cognition" and *metacognitive control or monitoring*, or "regulation of cognition" (Baker & Brown, 1984a). Metacognitive knowledge refers to an individual's knowledge and awareness of his/her own cognitive resources in relation to different task demands, for example in learning, whereas metacognitive control refers to the "self-regulatory mechanisms used by an active learner during an ongoing attempt to solve problems" (Baker & Brown, 1984a, p. 354). Building on recent works by Brown, Campione, and Flavell[14], Bråten (1991a) discusses what distinctions can be made between effective use of metacognitive knowledge and the verbal description of such knowledge. He makes the assumption that writers in this field (e.g., Brown, 1981, Brown & Reeve, 1986), have considered knowledge and awareness of cognition (i.e., metacognitive knowledge) statable, relatively stable, late developing and fallible, whereas metacognitive monitoring, or regulation of cognition, has been considered less conscious, less statable, relatively unstable and age independent (Bråten, 1991a). This, of course, makes the study of metacognition rather challenging, especially as regards the control mechanisms, as they seem to be less available for inspection. According to Baker and Brown (1984a), however, we should not let this discourage us. Notwithstanding the discrepancy between what, for instance, a reader says he does while reading and what he in fact is observed to do, it should be possible to study both aspects of metacognition, which has also been done, in laboratories as well as real-life situations (e.g., Brown & Palincsar, 1986, Silvén, 1992; see Garner, 1987 for a review). Above all, it has been proved that regulatory behaviour can be trained, a statement we will return to later in this chapter.

The relationship between the two kinds of metacognitive functions is the same as that between *declarative* knowledge, naming, or knowing *that*, and *procedural* knowledge, i.e., the ability to use rules or methods, or knowing *how* (Baker & Brown, 1984a). Paris, Lipson & Wixson (1983) have added another type of knowledge, *conditional* knowledge, which signals the flexible use of declarative as well as procedural knowledge, or knowing *when* and *where* to apply certain techniques or rules. This type of knowledge includes yet another component, which has proved to be essential for purposeful application of cognitive and metacognitive knowledge, i.e., knowing *why* the techniques, rules, etc., should be used (Anderson & Armbruster, 1984, Brown, Campione, & Day, 1981, Flavell, 1979). Variables such as person, strategy, task, and material, are ingredients in many models and theories within the field of metacognition (see Garner, 1987, for a review). A model frequently used to visualise the interrelations between different kinds of knowledge involved in cognitive functioning, like learning and reading, is the tetrahedral derived from Jenkins[15]. It has been used by for instance, Brown (1982), Brown, Campione and Day (1981), and Samuels & Kamil (1984). The model (fig. 3) depicts the interwoven cognitive (first-order level) and metacognitive (second-order level) functions involved in the process of learning from text (in this case); it also illustrates the difficulty to separate what is cognitive from what is metacognitive. In order to be able to plan, monitor and evaluate his interaction with text efficiently and thus learn from it, the reader has to achieve knowledge and awareness in all four domains (Brown, 1982).

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[14] All in F.E. Weinert & R.H. Kluwe (Eds.) *Metacognition, Motivation, and Understanding*. Hillsdale, NJ. Erlbaum, 1987.

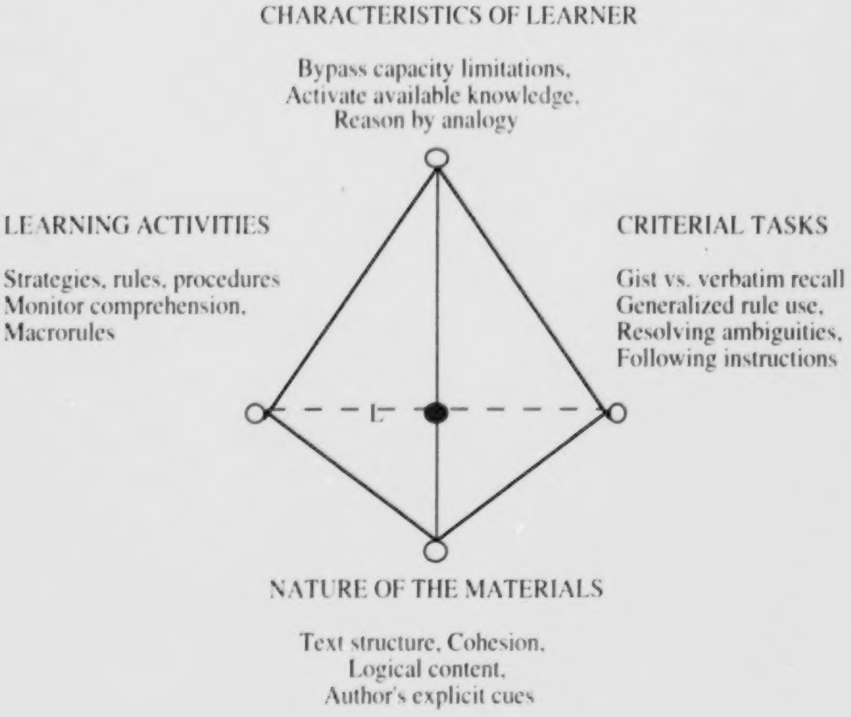

Figure 3. Model of the interrelated factors involved in a learning situation (from Brown, 1982, p. 43) (L = learner)

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[15] Jenkins, J.J. Four points to remember: A tetrahedral model of memory experiments. In Cermak & Craik (Eds.) *Levels of processing in human memory*, 1979.

a) characteristics of the learner -	actual cognitive abilities and skills, self-awareness, knowledge about one's own cognitive functioning
b) learning activities -	(declarative) knowledge about an arsenal of strategies and rules to apply, (procedural) knowledge about how to use them
c) criterial tasks -	what is to be achieved (goal) learner's definition of task (purpose)
d) nature of the materials -	texts and other learning materials, awareness of i.a. text structure and author's intention

Consequently, if *declarative* knowledge here involves knowledge about available strategies, tasks, and materials, and *procedural* knowledge refers to knowledge and skills in how to use available resources and possibilities, then *conditional* knowledge, in this case, would mean to be able to combine knowledge from all the areas into a purposeful act of learning adapted to that particular situation. In this sense, conditional and metacognitive knowledge seem to be the same, and the decontexualized or transsituational nature of this sort of knowledge is obvious. According to Bråten (1992) there are, however, researchers who argue against this view and claim that metacognitive knowledge is specific to each situation, and, consequently, cannot be generalised across situations, at least not as concerns regulatory functions. This view, again, may be due to a confusion between cognition and metacognition. Furthermore, considering the interwovenness of the factors involved in learning, it may not be very fruitful to make a distinction between knowledge about cognition and control of cognition, because "the two phenomena are inseparable aspects of higher forms of cognitive functioning" (Bråten, 1991b, referring to Vygotsky).

Metacognition and learning

The first metacognitive studies were carried out in the domain of memory functions, but other areas of mental activity, e.g., arithmetic (Resnick & Ford, 1984), learning (Barth Nordström, 1991, Pramling, 1983, 1987b) and reading (Garner, 1987), have later become objects of study. Brown and her colleagues, for instance, geared their interest towards reading, or, rather, reading comprehension and learning from text (Armbruster, Echols & Brown, 1982, Brown, 1981, 1982, Brown & Smiley, 1977, Brown, Campione & Day, 1981). We will later return to these studies. Touching upon metacognitive research, before the term "metacognition" was known in Sweden, a series of studies about learning from a "second-order" perspective (how do people conceive of and describe their own learning?) were made in Gothenburg. The first few of these studies were carried out among adults, mostly university students, later to be supplemented with studies among pre-school and primary school children. The results of the first studies indicated that there exist two principally different approaches to learning - a *surface* and a *deep* approach. When learning from text, a surface approach means that you are directed towards memorising the text, whereas a deep approach means that you use the text as a means to understand a message or an idea that may go beyond the actual text (Säljö, 1982, Marton & Säljö, 1984). The outcome or the *what* of learning is dependent on the approach to, or the *how* of, learning. Thus, recall of information from a text may be described as either *mentioning*, *describing*, or *conclusion-oriented* (Dahlgren, 1984), where the first two can be linked with a surface approach, and the third with a deep approach to learning from text. Although it seems that a deep approach should be preferable in the sense that it is more flexible and beneficial in the long run, there is no denying that a surface approach may pay off in certain situations, particularly in school settings, where, for instance, examination questions often call for mentioning or description answers rather than conclusions. Thus, a surface approach is enhanced (Säljö, 1984).

Pramling (1983, 1987b, 1994) has made extensive studies of pre-school children's conceptions of and reasoning about learning. She found a limited ability among pre-school children to reflect upon their own learning and thinking - when asked to do so (Pramling, 1983). They often do not relate concepts like ability, knowledge, and understanding to their own learning. It is not until later that they begin to realise that they have to *learn* to be able to *do*, *know*, or *understand* something. According to Pramling it is possible to further children's metacognitive functioning by training.

School does not always provide students with the proper instruments for developing their thinking. School knowledge is abstract and "intellectual" and leaves many young students in the dark as concerns its structure and function. These are some of the conclusions Barth Nordström (1991) has drawn from her studies of French primary school children. It is, however, a global phenomenon. The reason for many school failures is not lack of intellectual ability on the part of the children but rather the teachers' inability to clarify and define essential concepts to the children, coupled with a general unawareness of this problem.

> Some students unconsciously use those learning methods which most effectively lead to conceptual knowledge, but they may not be able to mobilise them on their own. Therefore, the next step is for them to become aware of methods or modes of thinking that lead to success so that they can use them strategically in future learning situations. (ibid., p. 129, translation by this author)

Children need to be taught how to think and how to learn in an efficient way, claims Barth Nordström, and the teacher is an indispensable mediator in this process.

Metacognition and memory

One of the most important components of the architectural system is memory. Apart from being essential to learning in general it has also been proved to be a vital part of the reading process. The function of working memory is particularly interesting in this regard (Baddeley, Logie, Nimmo-Smith & Brereton, 1985, Masson & Miller, 1983, Oakhill, Yuill & Parkin, 1988). Baddeley et al (1985) found a strong case for the existence of a specific language-based working memory system - in their experiments a sentence-span measure correlated significantly (r=.485) with reading comprehension. In Masson & Miller's (1983) study it was shown that merely storage capacity of memory did not covary with reading comprehension, rather, it was the ability to process information in memory and to integrate old and new information to draw inferences that accounted for this relationship. Oakhill et al (1988) studied groups of skilled and less-skilled reading comprehenders and found no general difference between the groups in memory capacity. Their data suggested that the skilled comprehenders were very active in their attempts to understand the text; rather than just memorising the sentences verbatim they made inferences and interpretations. The skilled comprehenders were also superior at gist recall. A conclusion from this study was that skilled comprehenders are better than less-skilled comprehenders in drawing inferences and integrating different text elements, because they can hold more information in working memory while processing the text.

Taking into consideration the importance to comprehension of prior knowledge in different domains, it is not surprising that memory has gained much attention by researchers in reading comprehension, as well as in learning. However, it is not the knowledge per se, what is stored in memory, that is essential, but the availability of it. For instance, Bransford & McCarrell (1974) state, that "prior knowledge is not sufficient to assure comprehension. This knowledge must be activated if one is to understand" (ibid., p. 207). The link between memory storage and reading comprehension should not be confused with the relationship between reading for remembering and reading for understanding. Both are connected with the concept of "reading to learn" but not in a straight forward fashion. For instance, I can remember what I have read without having understood, and I may have understood without being able to recall what I have read. In both instances "learning" might have taken place. In the first case, I may be able to reproduce certain facts - an obvious case of "learning". In the second case, what I read may have influenced me into changing my behaviour in some way, even without my being aware of it - a more subtle case of "learning". In both cases memory plays a major role, even if the crucial memory components are not the same. Thus, the bridge between comprehension and learning seems to be less firm and clear-cut than the one between memory and learning, although it is well known that meaningfulness (i.e., having understood concepts and words) enhances memory and "deep" learning (Barth Nordström, 1991, Marton, Hounsell & Entwistle, 1984).

One memory-related skill that is important for studying is to make up a retrieval plan, which includes the ability to decide what is important information and needs special attention, what you already know, details that can be omitted, etc. Brown & Smiley (1977) found that children as young as 8 years of age were sensitive to importance of structural units within a text, i.e., their recall was better for passages that were important for the gist of the story than for less important passages. However, the skill in assessing the importance of units for recall varies with age, with text difficulty, and, it seems, also with level of cognitive ability (Oakhill et al, 1988). Brown & Campione (1979) state that the ability to make up efficient retrieval plans is rather late developing. In their study the college students had developed a strategy to disregard both the least and the most important units in their retrieval plans; this was taken to prove that they realised they would remember the most important units without effort, so they concentrated on the intermediate level and thus showed better performance.

Metacognition and language

Without going into details in a research area which in itself is both wide and deep, it would be safe to say that children's awareness of language and different linguistic and grammatical elements, and their ability to shift attention from content to form, i.e., from the semantic to the symbolic characteristics of a word (Lundberg, 1984, 1987), carries a strong relationship with their ability to learn to read and write. According to several studies, this relationship is strongest before and during the initial stages of literacy learning, although it is not a straight forward, linear correlation (Bradley, 1985, 1986, Coltheart, 1981, 1983, Frost, 1992, Harrison, 1992, Lundberg, 1984, 1987). On one hand, it seems to be an important prerequisite for learning to read, on the other, it also seems that it develops in interaction with literacy and other language skills (Liberg, 1987, 1990, Magnusson & Nauclér, 1987). Liberg (1990) claims that metalinguistic studies become particularly important in an individual-psychological research paradigm, in which it is assumed that "writing is the representation of speech", thus restricting visual language to "transcripts". This is to accept a *static* literacy learning environment where language activities are reduced to "commenting upon and manipulating the writing system". She advocates a socio-interactionistic research paradigm, where language is seen as form which "may appear in different media", one of which is writing. In this more *dynamic* view reading and writing become "languageing within the visual medium", and the conventional "transcript" is not the starting point of literacy learning. Rather, the starting point is the flexible use of written language in various situations and in "interaction with other readers and writers in order to create and maintain cultural and individual meaning" (Liberg, 1990, p. 31). Such a wide-angle approach to literacy learning also harmonises with the ideas of activity theory, situated learning, and apprenticeship (Coles, 1992, Rogoff, 1990).

A few studies in the metalinguistic domain should be mentioned. For instance, Tornéus (1983) found metaphonological abilities, like segmentation, sound blending, position analysis, and segment deletion, of critical importance for learning to read and to spell. She also found that such skills develop during a long period of time, and that the development is enhanced by directed training, especially for children who show some deficits in this domain. Bradley & Bryant (1983) likewise found a causal link between skills in phonological analysis and learning to read. Like Tornéus they were also able to show that it is possible to train these skills in young children, for instance by using both lexical and non-lexical procedures. Rhyming, i.e., sound categorisation, has proved to be one of the crucial elements which can be trained in pre-school with good results (Bradley, 1985, Frost, 1992, Hagtvet, 1988, Lundberg, Frost & Petersen, 1988, Malmquist, 1974). In the Lundberg et al study (1988, Frost, 1992) a group of pre-school children were given phonological training, in the form of specially developed language games, as part of the everyday activities, while a control group received ordinary pre-school treatment. The children were then followed through the first four years in primary school. The trained group showed superiority not only in phonological skills but also in reading and spelling, throughout. Among low-achievers, especially, the effects were remarkable: low-achievers in the experimental group performed on par with the average control group in both reading and spelling.

In the studies reported by Bradley (1985, 1986) pre-school children were trained in sound categorisation based on their own everyday language. However, although written language was not actually used, children who were taught to categorise sounds and also shown the explicit connection with the alphabet made specially good progress. Bradley concludes that the same approach could be beneficial also for older retarded readers and spellers. A parallel can be found in Witting (1987, 1990). In her work with children and adults with severe reading and writing disabilities, she has developed a method for learning to read and write where the learner is trained in language awareness, taking his own everyday language as the starting point, and gradually takes over responsibility for his learning. Hagtvet (1988) worked out a programme for stimulating pre-school children's language development through play (language games), based on the natural interest in language patterns often found in young children[16].

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[16] Studies of children who learned to read very early: e.g., Clark, 1976, Söderbergh, 1977 (see note 4).

"Playing with language" thus seems to be an important ingredient in preparing children for school-work. Unfortunately, there is not much trace of it in the traditional ways to teach literacy in school. According to Liberg (1990) these traditional methods adhere to a "static linguistic sign", based on formal grammar, when the most natural way would be a language experience approach, based on a "dynamic linguistic sign" and flexible use of everyday language, formal as well as informal, in speech and writing. Most children come to school with reliable knowledge of language in use, but some have limited experience with print. Thus, the gap between their everyday language and the school-language becomes a hindrance in their school career:

> ... a great deal of failure in comprehension and thus much of the disillusionment with reading that occurs in the later primary years has its roots in children's experience of meeting syntax that they cannot process. The language that they find in books is saturated with phrase and sentence structures that are not the norm in speech ... because these features have to do with the nature of written language and its need to be coherent, explicit, and self-contained, they are not learned through conversation: most are met only between the pages of a book. (Donaldson & Reid, 1982, p. 12)

In a later section of this chapter we will look further into some attempts that have been made at training children's knowledge about features of written language, flexible strategy use, and metacognitive skills and awareness.

The social dimension of cognitive and metacognitive development

One characteristic of Vygotsky's theory of cognitive development is the emphasis put on the social context of the growing child. In later years, as the interest in the work of Vygotsky and his contemporaries within Soviet psychology has grown, several researchers have studied and revalued these early writings (e.g., Brown & Campione, 1986, Lave & Wenger, 1991, Rogoff, 1990, Wertsch, 1985a). Learning is one cognitive activity in which the social dimension seems particularly important. After quoting Vygotsky, who claimed that higher mental functions are internalised social relations, Wertsch (1985b) concludes that this argument, developed fifty years ago, is still relevant to research in cognitive development, and Lave & Wenger (1991), in the same vein, contend that "learning is an integral and inseparable aspect of social practice". Further, Brown & Campione (1986) state, that "contemporary work is guided by a view of learning as an active, socially-mediated process".

Some of the more influential studies in this line of thought in recent years are the works carried out by Lave (Lave, 1988, Lave & Wenger, 1991) and Rogoff (1990). Although using different terms they ultimately build upon the works of Vygotsky and the "cultural-historical school", and the "theory of activity" as presented by Leontiev. Rogoff (1990) has adopted the term *apprenticeship* to signify children's cognitive development in a socio-cultural context, and she discusses the mutual relationship, or *inter-subjectivity*, of the actors in the learning process, which could or could not involve active teaching, but at any rate should involve *guided participation*. Lave & Wenger (1991) use *situated learning* as the key concept, and in stressing the true participatory flavour of any learning situation they develop the notion of *legitimate peripheral participation*. This concept gets its meaning "in its multiple, theoretically generative interconnections with person, activities, knowledge, and world" (Lave & Wenger, 1991, p. 121). In a situated learning activity the newcomer, providing he is motivated, moves from being a peripheral participant to becoming a full practitioner; what is worth knowing, or meant to be learned, is inherent in the situation and in the cultural context, or the social world, in which it takes place.

With activity theory as a vantage point Wyndhamn and Säljö (Säljö & Wyndhamn, 1987, Wyndhamn, 1988) studied grade 6 students involved in solving arithmetical problems, presented in such a way that they seemed incompatible with the true nature of the problem. Their objective was to find out how students define and handle such cognitive tasks in a school context, that is, how performance varies as a function of task and context. In activity theory the fundamental question is what an individual or group is doing in a particular setting (Wertsch, 1985a). Being a special sort of social setting school has its own rules and behavioural patterns not applicable to real life situations. Wyndhamn & Säljö argue that the tasks are embedded in the educational setting, which means that the school, or rather the teacher, provides certain leads for the students to follow in order to fulfil the task. Students get such leads either from the timetable or from headings in the instructional material, or from the way previous tasks have been taught and performed, usually in small steps with gradually increased level of difficulty. In cases where the leads are ambiguous (which seems to happen often enough in school) low-achievers encounter serious problems, because they cannot define the target task, they cannot "read" the situation, although they may have been able to solve the actual problem, had they received a "good lead". Such a teaching situation may occur in arithmetic as well as reading and it does not foster the students to become independent learners. Instead:

> ... good /reading/ teaching is about assisting performance along a pathway through the zone of proximal development, to go together with children where at present they cannot go alone. (Coles, 1992, p. 124)

According to Wertsch (1985a) an activity or activity setting "is grounded in a set of assumptions about appropriate roles, goals, and means used by the participants in that setting" (ibid., p. 212). This setting "guides the selection of actions and the operational composition of actions, and it determines the functional significance of these actions" (ibid., p. 212).

Apparently, individuals can - and do - interpret the given intentions differently (Bergqvist, 1990, Wyndhamn, 1988). They may even set up their own motives, goals and objectives. If we apply the ideas of activity theory (slightly modified) to the case of reading in the school context we would get a "formula" like the one in table 2. This is, however, a hypothetical and idealised case seen from society's point of view, not the individual's.

Table 2. Activity theory applied to reading (terminology in columns 1 and 3 as used by Wertsch, 1985a, p. 204)

Level of Orientation	**Task** (what and how?)	**Intention** (depending on ...)
Activity	Studying in school	Motive: to get educated
Action	Read a book	Goal: to learn something, or answer questions
Operation	Reading: decoding, comprehension	Conditions: social context, individual abilities

Ideally, the overall activity in a school setting is to study, with the intention of getting educated. One of the actions taken to achieve the goal of learning something - with the immediate goal to meet some requirement such as answering questions - is to read a book or a text provided by the teacher. On the operational level the act then would be to decode and comprehend the text, the success of which depends on certain conditions, such as the learning environment, or the abilities of the learner (Wertsch, 1985a, 1985b, Wyndhamn, 1988).

Apart from harmonising with everyday experience of parents and teachers, this view of learning as a social activity tunes in very well with an array of intervention studies, where guided practice and participation have been the main issue. Normally, we tend to forget that reading often occurs in social contexts (Bruce, 1985), and that children observe reading and writing being done by others around them. Based on the works of, e.g., Vygotsky, recent research has helped us to "situate" reading comprehension and to understand how it "fits in a social setting" (ibid., p. 54).

Training of metacognitive awareness and skills related to reading

Whether or not it is possible to train - or by intervention help to develop - mental functions was for a long time a matter of intense debating, which all had to do with the different views of the concept of intelligence.

Relating to the theory of intelligence proposed by Campione and Brown, Borkowski (1985) holds that:

> Whereas the more biologically rooted architectural system, critical for the efficient registering and assessing of information, is probably immune to pronounced, immediate, and direct alterations through interventions, the components in the more environmentally based executive system are highly modifiable. They appear to be products of enriched learning experiences and provide the specific foci for elevating intelligence. (Borkowski, 1985, p. 111)

This means that use of cognitive strategies should be sensitive to intervention. Stimulation and training of pre-school children's language awareness have already been mentioned as being important for success in learning to read. Unfortunately, not all children grow up in an environment where their cognitive development during their first, formative years is stimulated and facilitated. It is true that cognitive development apparently goes on without explicit training - ordinary school practice and growing age play their part. It is also evident that all students benefit from training in strategy use and monitoring of cognitive functions (Pearson & Gallagher, 1983), as has been demonstrated in several instructional experiments. So, although it is obvious that metacognitive knowledge and control develop by age this development can not be taken for granted, and should therefore be stimulated, especially as concerns children who are disadvantaged in some way (Armbruster et al. 1982, Brown et al. 1981, Kinnunen, Vauras & Raunio, 1990).

Most interventions, also in the form of ordinary classroom teaching of reading strategies, have suffered from lack of generalisation, or transfer of knowledge and strategy control from one situation to another. This may be due to faulty assumptions about how students learn to learn, to lack of appropriate materials, but also to lack of knowledge among teachers about how to teach strategies (Durkin, 1978-79, Pearson, 1985b). Further, based on a number of studies by herself and others, Garner (1987) concludes that learners need information about when and where, i.e., conditional knowledge, as well as how, to use the strategies they are being taught, lest they will apply the routines haphazardly in a rote fashion.

Brown et al (1981) discuss three types of strategy training: *blind training* - training to use a strategy without concurrent understanding of the significance of the activity; 2) *informed training* - training to use a strategy where the students are informed about the significance of the activity; 3) *self-control training* - training in the use of a strategy together with explicit instruction in why and how to employ, monitor, check, and evaluate the strategy. The third type, strategy-plus-control training, proved to be most efficient, in that it enhanced immediate performance on the learning task as well as transfer to similar and appropriate settings. According to Armbruster et al (1982) it can be deduced from several successful training studies of this kind, that "knowledge precedes control", that is, before a learner can use study strategies effectively, he must be aware of text, task, and self (fig 3), and how they interact in the learning process. Thus, the "natural chain" of development as regards effective use of learning strategies when learning from text seems to be: 1) intuitive use of a technique, 2) awareness of use of the technique, 3) knowledge of a variety of techniques/strategies and their effects, 4) ability to verbally describe strategies and their effects, 5) control of flexible and purposeful use of strategies (monitoring).

Brown & Palincsar (1982) report a case study with four seventh grade learning disabled students, who were tutored individually "for many sessions" during a period of six weeks. They either received corrective feedback about mistakes first and strategy training after, or vice versa. Student and experimenter took turns in leading a dialogue about the passages that they read, including paraphrasing the main ideas, discussing how information may be grouped or classified, predicting possible questions about the content, hypothesising about the remainder of the text, and commenting on confusions and how to resolve them. The sequence that gave the best result was corrective feedback followed by strategy training, which gave a considerable improvement in comprehension. A follow-up after six months showed that some improvement was maintained and that the students regained a correctness level of 90 per cent very soon after reintroduction of the strategy training. The students then continued to use the improved monitoring skills in unprompted situations, and there were significant improvements on standardised tests of comprehension and transfer (Brown, 1985).

These promising results in training of specific skills, self-regulation, and awareness, gave way to extensive studies, with more subjects involved. For instance, junior high-school students took part in a project where focus was on teaching effective comprehension skills, i.e., skills that give the readers opportunities to concentrate both on the material they are reading and on themselves as learners (Brown & Palincsar, 1986, 1987). The strategies selected for this project were: *summarising* the main content (self-review), *formulating* potential text *questions*, *clarifying* ambiguities, and *predicting* future content. One important aspect, again, was the *reciprocity* in the interaction between teacher and small groups of students, where the students were equal partners, taking turns in leading the discussions, and the teacher gradually handed over more and more of responsibility to the students. Brown & Palincsar (1987) point to the fact that there are positive effects over time for reciprocal teaching, at least after two months in routine maintenance checks, and in the study mentioned above after six months (Brown & Palincsar, 1982). In general, they found the following effects: a) generalisation to the classroom, b) improved performance on post-tests that tap the trained skills, and c) improvements in standardised test scores (Brown & Palincsar, 1987, p. 53).

Reciprocal teaching of comprehension strategies can, of course, be used by any classroom teacher, according to Brown and Palincsar (1986). Their model of working is based on some central principles:

> a) the teacher should model the desired comprehension activities, thereby making the underlying processes overt, explicit, and concrete,
> b) the teacher should model the activities in appropriate contexts, not as isolated decontexualized skills,
> c) the students should be fully informed of the need for strategic intervention and the range of utility of a particular strategy,
> d) students should realise that the use of strategies works for them,
> e) the responsibility for the comprehension activities should be transferred to the students as soon as they can take charge of their own learning,
> f) this transfer of responsibility should be gradual, presenting students with a comfortable challenge; and
> g) feedback should be tailored to the students' existing levels, encouraging them to progress one more step toward competence. (ibid., p. 11)

Brown (1985) gives several examples where reciprocal teaching, coupled with "expert scaffolding" (borrowing a term from Vygotsky), has been practised in ordinary classrooms with mixed groups of students, and, apart from reading comprehension, in subjects like arithmetic and physics, sometimes by help of computers. The assumption is that the students learn to think, not only to comprehend what they read, when the instruction introduces both the content to be mastered and the thinking processes that lead to mastery.

In the Kinnunen et al (1990) study 48 fourth-grade poor readers formed four subgroups, three of which underwent 16 weeks of training in various cognitive and metacognitive skills, and socioemotional "coping" strategies (one sub-group only). The controls received no training, neither did a control of 20 good readers. The training included comprehension and definition of task, activation of relevant prior knowledge, control of reading comprehension, selection of important information, compilation and summarisation, integration of all these skills to a smooth and strategic function. The teachers who carried out the training sessions interacted in various ways with the students. Apart from direct teaching they modelled (by think-aloud method) use of strategies, self-control, and coping, they controlled and analysed the processes, stimulated the children's independence and verbalisation of on-going activities, activated the children in role-taking and shift of attention, motivated conversation and co-operation between peers, and gave differentiated feedback on activities and results. After eight months post-tests showed increased reading speed in all groups, but it was only significant in the coping-strategy group. Among the poor readers there was also a marked increase as regards control strategies, on both lexical and syntactic level.

Silvén (1990) used similar training methods (activate relevant prior knowledge, identify important sentences and messages, make logical connections between messages, and summarise sentences) with sixth-grade students (poor and average readers). Provided that the teacher properly modelled and controlled the activities, stimulated and urged the students to verbalise and control their reading, the students' ability to grasp the message of a text improved. The poorer readers were especially sensitive to the teacher's modelling of activities. However, they could only apply the trained strategies for texts within a well-known subject area, whereas the average readers could transfer their capabilities to a text with unfamiliar content. Although there were significant positive effects on reading comprehension and text-processing strategies immediately after the training, most of these effects had disappeared after five months, which indicates that comprehension strategies are not learned once and for all. Rather, they need to be practised in different settings and with different materials, to be internalised. Silvén (1992) takes this as indicating that strategy training gives effects on the subjects' cognitive development. Possible effects on their metacognitive skills could not be firmly established, although there was a general metacognitive development among all the subjects in the study, and especially among the poor learners. Whether this was due to the training or a "natural course of events" remains unclear, as such development was also noticed among peers who had not taken part in the study. It seems clear, though, that comprehension monitoring was influenced by the training, in accordance with the studies by Brown and others mentioned earlier, in which the regulatory functions, or monitoring of cognitive strategies seemed to be more open to intervention (through modelling and "expert scaffolding") than metacognitive knowledge or awareness, which so much depends on the verbal ability of the individual (Brown, 1981, Brown & Reeve, 1986).

Pramling (1987a, 1987b, 1994) has found that training of metacognitive functions in pre-school gives children a firm ground for learning in school. In her training studies she has worked with "metacognitive dialogues" on three levels of generality: 1) the concrete content of a topic/subject; 2) the structure of a topic/subject; and 3) different aspects of learning, in order to help the children reflect on their own learning activities and thus better understand the surrounding world. Topics for the metacognitive dialogues have been: learning (what you learn and how it happens), the human-made world (the local environment, then and now, urban - rural, education and profession), nature (what it is and how it develops), reading and writing (how and why, comprehension of written messages), mathematics (how and why, solving of mathematical problems) (Pramling, 1994). Overall, there was a notable difference between the experimental and control groups as concerns awareness in all five domains - the experimental groups had a clear advantage after their taking part in the one year programme.

One of the main metacognitive functions seems to be the shift of focus, or perspective, that takes place when the individual realises that different strategies can be used for different purposes (Armbruster et al, 1982), and when he can disregard the content (semantics) of a word (or the shape of its letters) and concentrate on its pronunciation (or what the letters symbolise) - or the reverse. This ability to shift focus is not to be taken for granted but, on the other hand, it can be trained, as has been demonstrated in several studies (Lundberg et al, 1988, Hagtvet, 1988, Pramling, 1994). Related to this function is "decontextualisation", i.e., to be able to, after attaining certain rules for language use and for print (Lundberg, 1987) that are general across situations, apply them appropriately. Another shift of attention in reading is that from message to language/text or vice versa, which is necessary for the ability to understand figurative language and metaphors, so often used in fiction and poetry (Pearson & Tierney, 1984, Svensson, 1985), but also common in everyday language in, for instance, newspapers. Pearson & Tierney (1984) go as far as saying that a thoughtful reader plays four parts: the planner, the composer, the editor, and the monitor (ibid., p. 148), in relation to the author's intended and actual text as well as to the reader's own interpretation or construction of the meaning of that text.

In sum, it can be stated that children's cognitive and metacognitive functions, or simply thinking abilities, as regards language and comprehension can be trained. Surprisingly good results have been achieved in interventions where the following model has been applied: modelling, guided practice (expert scaffolding), and gradually more independent practice or application of learning/reading strategies, where feedback has been more suggestive and less corrective as time goes by (Pearson & Gallagher, 1983, Pearson, 1985a, Brown & Palincșar, 1986, 1987), and where strategy and awareness training have been offered simultaneously.

The case of "good" and "poor" reading

The Brown & Palincsar-studies started with small groups of poor reading comprehenders as participants and were later extended to whole classes with mixed-ability students. Poor comprehenders are not necessarily poor decoders, but, more often than not, poor decoders are also poor comprehenders. In most cases, when "poor reading" is discussed, impaired decoding ability is what is referred to, since it is more apparent (Brown, 1981). Students with problems in reading comprehension rarely get the practice they need. Instead they are assigned tasks where they get to practice decoding, sound identification, pronunciation, word identification, etc. in a routine fashion, whereas the already "good" students are provided with comprehension tasks, stimulating questions, discussions about content and purpose, etc. (Brown, 1985, Brown & Campione, 1986, Medwell, 1991, Pearson, 1985a). Also, teachers seem eager to correct poor readers' errors at once, whilst for good readers they often wait until they have finished a phrase before correcting them (Brown, 1985). According to Garner (1987) there is substantial support, in the large amount of research she has reviewed, for the conclusion that "good readers get more meaning-emphasis instruction and more silent reading practice" in school. In addition, basal readers also tend to emphasise oral reading and decoding. This can only discourage the poor readers; to them reading is boring and much less thought-evoking than it could be, and books appear - at most - as sources of information of the kind asked for in school, rather than sources of valuable knowledge and pleasure. They get less experience with different types of text and therefore do not acquire the tacit knowledge of structures which help the good readers understand and appreciate what they read (Beach & Appleman, 1984).

The nature and origin of differences between good and poor readers - as they appear after the initial stages of schooling - do, of course, vary. They can be traced back to the readers' experiences before school as well as in school. They may have to do with intellectual or perceptual capacity, or other individual characteristics, social and emotional conditions, experience with language and print, pedagogical environment, etc. Francis (1982) reported a number of cases of initial reading acquisition. She found that the successful readers were highly motivated and eager to learn as compared to the slow learners, and, in particular, to the late beginners, who did not learn to read during their first school year. The successful readers also showed some early awareness of language structures and the symbolic features of print and quickly learned to handle the reading code, which the slow learners did not. The late beginners had little if any support at home, their vocabulary was limited, and they had significant problems in realising what reading - and writing - was all about.

It seems that the differences between good and poor readers are to be found in cognitive functioning, as well as metacognitive knowledge and in monitoring of strategies (Brown, 1989). Successful or good readers are said to be more thoughtful and determined; they know what to expect from a text after just giving it a glance; they are more prone to using different strategies according to the task set before them; they realise when they do not understand and take measures accordingly; they use their memory capacity selectively and effectively; they evaluate the information or knowledge embedded in a text; they know that comprehension does not entirely depend on their capabilities but also on the text or the author; and they enjoy reading - even if they sometimes have to read things that do not interest them (Garner, 1987, Smith, 1982). Poor readers, on the other hand, seem to possess, or by explicit training readily acquire, the adequate knowledge and strategies, but most often they fail to use them in unprompted situations (Bransford, Vye & Stein, 1982).

As Brown (1985) and others have pointed out, the school system (and I believe it is valid for any school system in the industrialised world) can not quite tackle this problem. Recently published results from studies in the International Association for the Evaluation of Educational Achievement (IEA) demonstrate, for instance, that Swedish school children have a generally good reading ability compared to many others (Elley, 1992) and yet, on micro-level, we know that several fall behind. Despite various kinds of special education some children leave school with less than sufficient functional literacy skills. They can read, i.e., they have learned how to decode familiar text types, but they have never learned to enjoy reading. They have been trained to interpret a text on surface level and to memorise it, not because they find it memorable but because the syllabus and the teacher demand it. Many of the poor readers in the higher grades of compulsory education have learned how to survive school, but they may never become readers in the proper sense of the word.

This thesis is about such students, but it is also about some of those who are on the opposite side, i. e., those who have learned how to enjoy reading while they are still at school.

Chapter 3

METHODOLOGICAL CONSIDERATIONS

In the field of research on reading comprehension, learning from text, and related metacognitive functions, earlier studies, depending on discipline or research paradigm, have focused either on content issues, on learning outcome, or on processes (see Garner, 1987 and Weintraub, 1992 for reviews). My ambition has been to describe these phenomena in a broad perspective and primarily from the students' point of view. This, of course, presupposes access to the students' thoughts (Baker & Brown, 1984a), which means that the interview plays a central part in my study. Coupled with a comprehension assessment, a reading-time measure, immediate oral and delayed written recalls, the interview was thought to give the intended broad description of reading comprehension and metacognition. In metacognitive research interviews are frequently used (see for instance Pramling, 1987a, for a review), but other methods are possible, and have been applied in various studies (Garner, 1987), such as error-detection, think-aloud (Glazer, 1992), optimal - non optimal production[1], stimulated recall, e.g., using video-tapes (Alexandersson, 1994), and different kinds of interventions or training studies (e.g., Brown & Palincsar, 1987, Campione & Brown, 1979, Linnakylä, 1991, Paris, Cross & Lipson, 1984). None of these methods have been applied in my study, even if some of the strategy questions in the interview were asked in connection with the activity that they dealt with, and thus came close to the think-aloud technique. These questions were, however, presented after the immediate recall of each text.

For almost two decades educational research in Sweden - and in later years elsewhere - has been heavily influenced by works carried out within the phenomenographic approach (Marton, 1981, 1992). The main aim of this research approach is to capture - through interviews - and categorise individuals' conceptualisations of learning experiences (Francis, 1993). Thus, the result of the research is the "categories of description" (Marton, 1981) that emanate from the subjects' responses to specific questions phrased in such a way so as to glean the subjects' thoughts and reflections about a certain phenomenon, experience, situation, episode, etc. (Marton, 1992). The categories reflect the differences in people's ways to describe how they perceive, experience, understand and learn about the world. In other words, the categories describe a relation between the subject and the object:

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[1] Subjects are asked to produce "good and "bad" versions of text

> ... phenomenography regards concepts of learning as constructed by the individual out of awareness of trying to learn some particular matter in a particular context. Each is a function of the person, content and context as an integral phenomenon. (Francis, 1993, p. 69)

The derived categories are assumed to be generalisable between individuals, i.e., many individuals may have the same conception of the same phenomenon in similar situations. They are not necessarily generalisable within individuals, i.e., they may change from one context to another. In other words, you may find that inter- and intra-individual variations of conceptions are the same. According to Marton (1992) what we should explore with this approach is, on one hand, how the world - as we experience it - appears, and, on the other hand, how our way of perceiving the world appears (ibid., p. 39), i.e., how many different ways there are to perceive the same thing. In other words, the external, objective, world is constituted by different individuals' subjective descriptions thereof. Taken together the different descriptions tell us something about the world, or rather how it appears to people; taken one by one, they tell us something about the individuals and their experiences of the world at a certain point of time. The interpretations of these experiences may change from one situation to another within an individual (cf. the concept of situated cognition or learning, in chapter 2). In this perspective learning means a change in the way we experience the world, and in the quality of our awareness of phenomena in the world.

Research in metacognition relates well to this approach. The experiential or "second order" perspective adopted in phenomenographic research, in trying "to describe an aspect of the world as it appears to the individual" (Marton, 1981, 1988) corresponds with the object of study in metacognitive research, which is how cognitive functions and activities (within him- or herself) appear to the individual.

Collection of data

The interview as a method of data collection is not without flaws; especially when the subjects are children there is room for caution. Although the children in my case were relatively old (11-12, 14-15 years old) there would be some complicating factors to consider (Garner, 1987), such as 1) memory failure, 2) limited access to cognitive processes (especially when they are automatised), 3) difference between repertoire of strategies and conscious use of these strategies, and 4) inadvertent cueing (subjects are complying to the interviewer). There is also the problem with differences in verbal skills, inadequate vocabulary, etc., as well as emotional complications. Even with older children (and with adults, for that matter) it is important to establish a positive and trustful atmosphere between the interviewer and the interviewee. An unbroken line of research, starting with Piaget's studies in child development (although not remaining uncriticized), has utilised interviews or "conversations" (sometimes combined with observations and tests, e.g., Francis, 1982) as means to gather information about children's thinking, despite the problems mentioned above (e.g., in later years, Dahlgren & Olsson, 1985, Pramling, 1983, 1994). In a similar vein studies of human learning and of individuals' conceptions of different phenomena in the surrounding world have been carried out using semi-structured interviews as the main source of information (e.g., Dahlgren, 1984, Franke, 1990, Marton, Hounsell, & Entwistle, 1984, Säljö, 1982).

Garner (1987) concludes that interview data can be highly informative as regards cognitive and metacognitive functioning, and based on her own and other researchers' experiences she gives some recommendations to follow: 1) avoid asking about automatic processes; 2) reduce interval between processing and reporting; 3) use other methods together with the interview to assess for instance knowledge and use of strategies; 4) use undirected probes; 5) use techniques that reduce verbalisation demands; 6) avoid hypothetical scenarios and general questions; 7) assess inter-rater agreement; 8) assess consistency of responses (ibid., p. 68). In the present study recommendations 2, 3, 4, and 8 have been followed to a high degree. Questions about strategies and comprehension were given immediately after reading and recalling each text. Other methods besides the interview have been applied, e.g., speed measure, and, in some cases, unstructured observations of reading behaviour to use as probes[2] (see chapter 6). Moreover, outcome data, in the form of recalls and responses to content questions, were used to complement the process questions. The process questions were phrased in an undirected way, e.g., "How did you read this text?". Consistency of responses were to some degree assessed by posing the same questions intermittently but also by asking about the same thing in different ways, e.g., "How do you usually do when you study for an exam?" and "If you were to read this text for an exam, how would you have read it?" The first of these questions violates recommendation 6, but, on the other hand, almost all the strategy questions in the "general reading" section were repeated in a more specified way after the reading of each text. To avoid asking about automatic processes was not possible in this case, because this was part of what I was interested in finding out: if the students could verbalise invisible and often unconscious processes. The same is true about the fifth recommendation - it was easy to foresee that some students would have problems in finding words for what they wanted to say. Inter-rater agreement was systematically assessed only for the self-concept part of the interview. However, for the text-content questions there have been two ratters and a technique of negotiated consent was applied. This agreement has not been assessed systematically and is therefore not accounted for in the thesis.

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[2] For instance, if a student denied that she had made look-backs into the text and I had actually seen her do so, I could tell her this and ask her what she was thinking at that point.

The studies mentioned in the above passage have dealt with various types of knowledge. This line of inquiry seems particularly well suited for using interview data. For instance, in their comparison of four different measures of topical knowledge Valencia, Stallman, Commeyras, Pearson and Hartman (1991) found that "different methods contribute different information and different views of the person's expertise" (ibid., p. 231). However, they conclude that:

> ... if the goal is to open a broader window on a student's knowledge, then an interview seems preferable. (ibid., p 204)

In my study there was such an intention to "open a broader window" on the students' knowledge about their own functioning as regards reading and learning. The interview was semi-structured. This increases the possibility to get additional information from the subject when needed (Guthrie & Hall, 1984), but it also increases the risk of leading the respondent into the answers you want. It is therefore essential that the interviewer is aware of the risk and tries to avoid this by adhering to the overall interview schema. The schema that was used in this study is described in detail in chapter 4. Apart from the questions that dealt with self-awareness the interview contained questions about the students' reading and study habits, and their conceptions of learning and reading. In conjunction with the reading of three different texts the students received questions pertaining to each text, about strategies, text structure, and content.

In order to supplement the interview data in my study additional data collecting methods have been applied. After reading each text the students were asked to recall it orally. Two more recall tasks were given, one after approximately two weeks, one after a year, both in writing. During the students' silent reading, speed was measured by means of a stopwatch, and because of the varying length of the texts reading speed was then converted into number of words read per minute (see chapter 10). This, of course, is a rough measure, since it only gives the average "speed" and does not account for variations within the same text. However, the measure gives an indication as to the putative differences in reading speed between different texts, and it was also used here as a control of the students' statements about their reading strategies.

The second meeting with the students, which took place one year after the first session, was focused on memory functions. The students were given two memory tests (of lexical access and working memory, described in chapter 4), both of which have been proved to correlate with reading ability (Baddeley, Logi, Nimmo-Smith & Brereton, 1985, Daneman & Carpenter, 1980, Samuels & Kamil, 1984). To complete the picture of the students' verbal functioning they were also tested for verbal intelligence (analogies and antonyms). On the same occasion they were given the task to write down what they remembered of the texts that they had read one year ago. All the memory data will be accounted for in a forthcoming publication.

One of the prerequisites of the study was that the students were to represent extreme groups of poor and good readers, as concerns comprehension but not decoding. The reason for studying extreme groups, rather than a random group, was so as to make any differences more apparent. Several studies of reading comprehension have used such extreme groups as subjects (e.g., August, Flavell & Clift, 1984, Bransford, Vye & Stein, 1984, McConnaughy, 1985, see also Garner, 1987, for a review). Normally such studies have focused on one aspect of mental functioning connected with reading comprehension, such as memory functions (Oakhill, Yuill & Parkin, 1988), prior knowledge use (Taylor, 1985), selective attention (Goelman, 1982), and comprehension monitoring (August et al, 1984). As mentioned earlier, my intention has been to cover several of these areas within the same individuals, and to do so in a non-experimental setting.

There were two sampling criteria, results on a reading comprehension test, and teacher ratings (see description in chapter 4). Problems with using these criteria, and relations between the two are discussed in detail in chapter 10. Another prerequisite was inherent in the choice of two age-groups. At the time of the first session the students were at the end of the fifth and eighth grades, i.e., they were or would become 12 and 15 years, respectively. The exact age (in months) of the subjects was not deemed relevant to the outcome of the research. The choice of these age-groups was made for several reasons; 1) the students were supposed to have passed the initial stages of reading development, thus being able to decode common Swedish; 2) the amount of research carried out in this particular area in Sweden regarding these age-groups was, so far, rather limited; 3) concerning the students' development much is happening between the ages 12 and 15, which would make it particularly interesting to study the differences in cognitive and metacognitive competence in these two age-groups, also with reference to level of reading performance; 4) differences in the school context between grades 5 and 8 may give different patterns of good and poor reading in the two age-groups.

Three texts were used for the silent reading part of the study. They were chosen so as to give another two "extremes"; exposition of facts versus narration - two rather common counterpoints in relation to reading comprehension and strategy research (e.g., Beach & Appleman, 1984, Goelman, 1982, Tierney & Mosenthal, 1982), which seem to trigger off differences in comprehension strategies, processing speed, and recall schemata. The third text was chosen because of its relative mixture of elements from exposition and narration - a typically factual text written in a narrative manner ("faction", Jansen, 1991), so far, less often used in this kind of research. This text also contained some metaphors intended to aid the reader's comprehension of some complex natural phenomena described in the text.

The context of inquiry (for session 1) was, of course, "artificial" in the sense that the students were placed in a room adjacent to a classroom, together with a person whom they had not met before and who was equipped with a tape-recorder and a stop-watch. However, the context was "natural" as far as location was concerned. The interview took place in a familiar environment, in the students' schools, and the equipment caused some initial curiosity but after that very little disturbance.

Analyses of data

Some methods of analysis more or less "belong" to certain data collection techniques, such as statistical analysis of test data, or content analysis of recall data. With interview data it is the type of questions and the mode of questioning, but also the quality of the responses, that determine the type of analysis that can be applied. Apart from the questions dealing with the students' self-concept, reading habits, and memory, my interview formula follows, in principle, the semi-structured format used within phenomenographic research (e.g., Franke, 1990, Pramling, 1983, 1994)[3]. Its contents are described in chapter 4, and the whole questionnaire can be found in appendix 1.

Because of the complex nature of the interview, different methods of analysis were applied to different sections. However, all categories were generated by the responses, i.e., no pre-fabricated categories were used. Some questions were "quantitative" (e.g., *Q6. What subjects at school do you find most difficult?* or *Q46. Were there any words you did not understand? Which words?*), some yielded short answers that gave very little information (e.g., *Q43. What did you think about this text? Q44. Was it interesting/amusing/ entertaining?*)[4]. Other questions aimed at penetrating the students' thinking about learning and reading (e.g., *Q13. In what way do you learn best?* or *Q47. How did you go about reading this text?*). The questions about self in section 1 of the interview were intended to assist the students in describing themselves and how they rate themselves as learners. In the analysis, the responses for each question were first treated separately, then every individual's responses to all questions (1-12) were combined into a "story" and rated by two judges independently (chapter 10).

Also the questions that were well suited for qualitative analysis were dealt with in different ways. For instance, answers to the content questions (chapter 8), in this case representing the learning outcome, were for the most part structural so that a variant of the SOLO[5] taxonomy (Biggs

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[3] Collections of studies made with this research approach can be found in Marton, Hounsell & Entwistle, 1984, and Marton & Wenestam, 1984.

[4] Some of these questions have been deleted from the analysis. Also, some questions about reading habits are accounted for in a separate publication (Persson, 1992)

[5] SOLO=Structure of the Observed Learning Outcome

& Collis, 1982) was found applicable. This taxonomy has been used, by Biggs and Collis, for various types of questions and in various school subjects. It describes five levels of sophistication or "quality" of answers or learning outcome:

> 1. *Pre-structural.* Student avoids the question (denial), repeats the question (tautology), a firm closure based on transduction.
> 2. *Uni-structural.* An answer is based on only one relevant aspect of the presented evidence, so that the conclusion is limited and likely dogmatic.
> 3. *Multi-structural.* Several consistent aspects of the data are selected, but any inconsistencies or conflicts are ignored or discounted so that a firm conclusion is reached.
> 4. *Relational.* Most or all of the evidence is accepted, and attempts are made toreconcile. Conflicting data are placed into a system that accounts for the given text.
> 5. *Extended abstract.* There is recognition that the given example is an instance of a more general case. Hypotheses about *not* given examples are entertained, and the conclusions are held open. (Biggs & Collis, 1982, p. 36)

As many of the answers I received from the students in this study were rather short it was often difficult to find five levels of sophistication for each question. Therefore, most often three or four levels were enough to describe the differences in quality. The questionnaire and an example of the categories derived from the answers, in phenomeographic terms, the outcome space, are found in appendices 1, 2). Even in cases were the SOLO taxonomy or phenomenographic analysis could not be applied to the answers, my intentions have been to carry out a qualitative assessment of the answers. This, no doubt, has caused some specific problems, since I have tried to assess two dimensions in the students' thinking: 1) how they perceive and comprehend the phenomena described in the three texts, and 2) what they retain from reading these texts (i.e., what they have learned).

For the "conceptual" questions (e.g., *Q28. What is reading? How/what do you do when you read?*) a phenomenographic type of analysis was used, where the categories are created by - or emerge from - the answers. The questions about learning (Q13-15) also belong to this category (Dahlgren & Olsson, 1985, Pramling, 1983). A type of questioning that related to some of the first phenomenographical studies is Q40. *What message do you think the author wanted to convey in this text?* (Wenestam, 1980). In the same "tradition" the questions about the content of text 2 (the text is on the topic why we get night and day) were thought to tap the students' conceptions of this phenomenon. Also for the other two texts the same combination of questions about the author's message and the factual content were asked. The whole interview, in fact, was constructed so as to acquire data about the students' approach to reading and learning from text, and the outcome of this learning (Säljö, 1984) as it appears in recall and answers to content-based questions. I have concentrated on the answers, and I only refer to recall protocols when they add specifically to a certain point (as in chapter 11). I intend to return to the recall data in a later publication.

One of my main aims was to study the differences in cognitive and metacognitive functioning, in relation to reading, between two age-groups and two performance groups in each age-group. This could be done in two ways; either by following single individuals through the research process and then study their verbal statements, or performance, at the different "check-points" (i.e., learning by reading, awareness of reading strategies, awareness of differences between texts, etc.), or by following the research process, study all students' verbal output at the "check-points" and then identify the differences between poor and good readers in these respects. I decided to take the second path. For each phenomenon I discuss, all the students' answers, or their reasoning, have been the source from which the categories are generated. After the differences in conceptions among the whole group have emerged I have tried to find out how the categories are distributed in the four subgroups, good and poor readers in grades 5 and 8. The students' own words have been used in the examples, but their identities cannot be traced; however, in most cases I have indicated what subgroups they belong to so as to demonstrate the differences between good and poor readers as groups. To complete the images of good and poor reading I have described four cases in chapter 11, one from each subgroup.

Finally, the complex set of data (see tentative model in chapter 4) in this project has required a triangulation of methods, as regards both collection and analysis. The bulk of the data are verbal, which makes issues of reliability and validity specially intriguing. On the other hand, such is the case with most studies using qualitative or "ethnographic" (Guthrie & Hall, 1984) methods of inquiry. It would, perhaps, in this context be appropriate to refer to Marton's (1988) reasoning about phenomenography, although my study is not entirely phenomenographical by approach:

> The original finding of the categories of description is a form of discovery, and discoveries do not have to be replicable. On the other hand, once the categories are found, it must be possible to reach a high degree of inter-subjective agreement concerning their presence or absence if other researchers are to be able to use them. (ibid., p. 148)

It may be worth noting that when I used questions similar to those used in phenomenographic studies, similar types of answers were received, despite the age of the subjects in my study.

Chapter 4

DESIGN AND METHODS

DESIGN

The general aim of this descriptive study was to examine how successful and less successful readers in the Swedish elementary school learn from text; how they comprehend different types of text, and how they conceive what they are doing when reading a text and learning from it. In order to make any differences more visible, two groups of students from each of grades 5 and 8 in the Swedish elementary school were selected. In other words, a theoretical sampling procedure was employed (Glaser & Strauss, 1967). The students were either high-achievers or low-achievers in reading, with special reference to comprehension (in the empirical part of this thesis mostly referred to as "good readers" and "poor readers"), and were selected on the grounds described below. This gave the following sub-groups: good readers grade 5, poor readers grade 5, good readers grade 8, poor readers grade 8.

After the sampling procedure, the study was carried out in two major parts, a silent-reading-and-interview session year 1, and a test session year 2 (fig 4). During the first session the subjects were asked to read three different texts and recall them, answer comprehension questions, and describe their activities as concerns reading and learning. During the second session they were tested for verbal intelligence and certain memory functions.

YEAR 1			**YEAR 2**
March	May	June	May
Sampling	*Session 1*		*Session 2*
Cloze test Teacher ratings	Interview Reading texts Immediate recall Comprehension	Recall 2 (written)	Memory test Verbal intelligence Recall 3 (written)

Figure 4. Time plan and contents of data collection in the study

METHOD

Subjects

A number of classes in grades 5 and 8 (students aged 11-12 and 14-15 years, respectively) within two school districts in Linköping were the main group from which 58 students were chosen to take part in the study. All in all, 265 students were given a reading comprehension (close) test (Grundin, 1975, 1977). The teachers (in grade 5 the class teacher, in grade 8 the teacher of Swedish) were then asked to select the five best and the five poorest comprehenders[1] in their respective classes. These two independent but assumingly related criteria were then combined so that those students who scored highest/lowest on the close test and at the same time had the highest/lowest rating by their teacher formed the group of subjects (described in detail in chapter 10). The students and their parents were informed about the purpose of the study, and only those students whose parents agreed to their child's participation were included in the group. Three students decided not to participate; one of them withdrew from the study after the first session. From one school district 15 grade 8-students from the same school unit were chosen, five of whom formed a pilot group to test the interview questions. The remaining ten students from that school-district took part in the interview session. Out of the 43 students belonging to the second school-district 39 students from four school units took part in both sessions. One student withdrew after the first session, two students had moved between sessions 1 and 2, and one was ill when the second session was carried through.

Apart from the students' achievements in reading, all data concerning their characteristics were collected from the students themselves. Thus, there was no information about home environment, social status in the class, special education, teaching methods or other background variables, other than what was mentioned by the students themselves during the course of the interview.

As the purpose was to find out how students deal with reading assignments and *how* they describe their reading processes, rather than *why* they differ in these respects, background information was not directly considered.

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[1] Some of the teachers pointed out that the students they had picked out as "best" or "poorest" in their class may not have been regarded as such in another class, because of between-class variations in the average reading ability.

Table 3. Students participating in the study

Category	Year 1	Year 2
Participants in the main study		
Good readers grade 5	3 boys 9 girls	3 boys 8 girls
Poor readers grade 5	5 boys 5 girls	3 boys 5 girls
Good readers grade 8	4 boys 5 girls	4 boys 5 girls
Poor readers grade 8	8 boys 4 girls	7 boys 4 girls
	43 students	39 students
Participants in the interview only		
Good readers grade 8	2 boys 2 girls	
Poor readers grade 8	3 boys 3 girls	
	10 students	
Total	**53 students**	**39 students**

Procedure

The combined interview-and-reading session (session 1) took place at the end of the school year (in May) and lasted 60 - 90 minutes. It was performed in the students' school and all interviews were made by the same person. The interviews were audio taped, and later transcribed for analysis. The three texts were read silently by the students and their reading time was registered by means of a stopwatch. (For details of the interview questions as well as the three texts, see appendices 1, 3).

Sequencing of session 1:

- Questions about self
- Questions about learning in general
- Questions about reading in general
- Reading of a text
- Recall of the text
- Questions about structure of the text and reading strategies
- Questions about content of the text
- Memory prediction

Questions under the first three headings were all given before the reading of the three texts, whereas the rest of the questions were repeated after each text. The order in which the texts were presented and read was varied between subjects to avoid any systematic effects of fatigue on a particular text.

After approximately two weeks the students were asked by their teachers to recall the texts in writing during an ordinary lesson at school. The recalls were collected by the researcher and compared with the first, oral immediate recall.

One year after the first session the students were asked to come to the university for session 2. They were given two computerised memory tests - one for lexical access and one for working memory (TIPS, Ausmeel, 1988), and two of the verbal subtests in.WIT (Wechsler Intelligence Test, Swedish version, Westrin, 1965). They were also asked to write down what they could recall from the texts which they had read the year before. The two written recalls are not dealt with in this thesis; they will be described and discussed in a later publication.

INSTRUMENTS

Tests

Close test. The close test used is composed of a simple fictional text in Swedish, containing 212 words. Every fifth word has been omitted and replaced by an empty space and a line where the reader is to fill in one missing word. There are 41 words missing, and all lines are exactly the same length in order to avoid nontextual cues. The testing time is 10 minutes. This particular test has been used in previous research (Grundin, 1975, 1977) with subjects of different age. It had a reliability of .88 for grade 5, and .86 for grade 8; and the correlation between this close test and a more traditional type of comprehension test was estimated to .61 for grades 6-12 (Grundin, 1975).

WIT. Two verbal intelligence scales from WISC (Wechsler Intelligence Scales for Children) were used, Analogies and Antonyms. This test battery is translated into Swedish and standardised for Swedish conditions (WIT, Westrin, 1965).

Memory tests. The two computer-based memory tests are part of a test battery originating from experiments carried out by Daneman & Carpenter (1980) and Baddeley, Logi, Nimmo-Smith & Brereton (1985). Swedish versions of these tests are described in Ausmeel (1988) and have been used in several studies (e.g., Lyxell, 1989, Rönnberg, Arlinger, Lyxell & Kinnefors, 1989). The Lexical Access Test measures the speed with which a subject can decide whether a string of three letters shown on a screen is an existing word or not (Baddeley et al, 1985). Responses are to be given by pressing a randomly assigned key on the computer keyboard. The task in the Working Memory Test is twofold: first, to decide whether a sentence presented on the screen word by word is a meaningful Swedish sentence or not, and second, to recall, in the order of presentation, the last word in each sentence in sets of three to six. The subject is to say out loud Yes or No for the meaningfulness of each single sentence and, after one set of sentences has been presented, to recall the last words in correct serial order.

Reading material

The three texts that the students were asked to read were chosen to represent three text genres, facts, "faction", and fiction, with different text structure and content. This way, it was thought, the students would demonstrate their awareness of differences between texts, but also their ability to monitor and control their reading behaviour according to the requirements of the texts. (See chapter 7 for a more detailed characterisation of the texts, and appendix 3 for English translations). In short, text 1 is a *descriptive exposition* of facts intended for grade 5; text 2 is an *explanatory exposition* of facts ("faction"); and text 3 is a fictional text, a *folk tale*. Some technical data about the texts are exhibited in table 4. The labelling of the chosen texts is my own. A more thorough analysis would yield different labels, depending on which system of classification that was used. For instance, in Meyer's (1984) terms the texts would be labelled *collection*, *description*, and *narration*, respectively. This matter is further discussed in chapter 2 under the subheading Theories based on text structure.

Table 4. Technical data for the three texts

	Text 1	**Text 2**	**Text 3**
Number of words	598	770	966
Word variation index	.57	.34	.41
Long words (%)	22	7.8	16
Sentence length	12.7	12.6	12.9
LIX	35	20	29

Notes.
Word variation index = Ratio between amount of different words and total amount of words (Persson, 1975)
Long words = words with more than 6 letters
Sentence length = Average amount of words per sentence.
LIX (in Swedish: Läsbarhetsindex) = index of linguistic difficulty based on the sum of average sentence length and percentage of words with more than 6 letters (Björnsson, 1968)

Interview

The interview was semistructured with many simple questions rather than a few extensive ones (appendix 1). It was divided into two major sections, one (section A) concentrating on individual characteristics of the student, the other (section B) based on reading of the three texts. Section A had three subsections; the questions in subsection A1 were intended to give a general picture of how the students describe their own self; the questions in subsections A2 and A3 were about the students as learners and readers; and finally, the section B-questions were intended to investigate the students' text comprehension, their perceptions of text structure, and their descriptions of the reading process. The interview questionnaire was given the following general structure:

A. About the student as learner and reader (before reading of the texts)
A1. Self (Q1-12)
A2. Learning in general (Q13-17)
A3. Reading in general (Q18-37)

B. About text contents and reading behaviour in connection with each text (after reading of each text)
B1. Text characterisation (Q38-46)
B2. Contents(Q70-78 for text 1; Q80-86 for text 2; Q90-98 for text 3)
B3. Reading strategies (Q47-51; 52 after text 1; 55-56 after text 2; 57; 61-63 after text 3)
B4. Memory prediction and functions; comparison of texts etc.(Q53-54 after text 1, 58-60; 64-65) Q31-34 in section A also deal with memory functions.

The questions were not always given in the same order as they appear in the questionnaire, depending on how the interview would proceed. In some cases the students gave the answers to a question before it was due, or the interview took another turn than was intended. It was then essential for the interviewer to gently steer back to the original scheme. Some of the questions were repeated after each text, i.e., questions about text genre and characteristics, about reading strategies and memory prediction, and questions about memory functions appear in both sections A and B.

The whole session (interview, reading of three texts, recall) took between 60 and 90 minutes. Most of the students had a positive attitude to the situation and answered the questions in a sincere and open-minded manner; many even seemed to enjoy it. A few were shy or seemed to have difficulties in finding the appropriate words, but no one refused to answer the questions. One or two of the poor readers were reluctant at first, claiming that they had such a poor memory, or commenting about the length of the texts, but everyone attempted to read every text.

The interviews, including recall of the texts, were audio taped. Only one of the students (a very skilled reader in grade 8) claimed that she was disturbed by the cassette tape-recorder but this did not seem to impede her performance. The interviews were then transcribed *in extenso* to facilitate analysis.

Text recall

The texts were recalled three times, immediately after reading each text, two to three weeks after session 1 and after one year. Recall 1 was oral, recalls 2 and 3 were written. Recall 1 was audio taped and transcribed together with the interview, recall 2 was performed in the classroom by the students' respective teachers, and recall 3 was performed by the researcher during session 2. Recall data are not discussed in detail in this thesis.

METHODS OF ANALYSIS

The material consists of a variety of data permitting quantitative as well as qualitative methods of analysis.

Interview questions

In analysing the answers to the interview questions different techniques were used. The A1-answers were combined to create a picture of each individual, the way he perceives himself, to be used as background for the individual's conception of himself as a person, a learner and a reader (chapter 9). For the A2- and A3-answers a qualitative approach of analysis was used, so that the students' answers formed the categories. (For an example of the outcome space see appendix 2.) This technique is commonly used in qualitative data analyses, for instance, as it is practised in phenomenographic research (for a detailed description of this research approach see e.g., Marton, 1981, Franke, 1990). The results of the analyses are described in chapters 5-6. However, some of the questions in the A3 subsection are of a more quantitative nature and the answers are analysed accordingly. Section B deals with the actual reading of the texts, the answers to the questions in subsections B1 and B2 are analysed in a qualitative manner (chapters 7-8), whereas B3- and B4-answers again are of a more quantitative or descriptive nature (can be found in chapters 6-7). There are some overlaps between the chapters.

Reading speed

During the students' silent reading of the texts reading speed was measured by means of a stop-watch. The reading time was then converted into words per minute to make the scores comparable, as the texts were of different length.

Ex.

Subject	**Reading time**	**Reading speed**
501	Text 1: 2 min 12 sec	272 words/min
	Text 2: 2 min 47 sec	277 words/min
	Text 3: 3 min 23 sec	286 words/min

Text recall

Recall I was made orally immediately after reading each text; it was audiotaped and transcribed. The amount of words recalled for each text was calculated. An inter-judge procedure yielded the most important items in each text, and those items that both judges agreed upon were listed. Each recall record was then compared with the list and the items mentioned by the student were scored. The same procedure was followed for all recalls.

Prediction accuracy for text recall was estimated by comparing the students' statements just after reading the texts, regarding how much of each text they would remember after a couple of weeks, with the amount of text and what in the text they actually recalled. Analyses and results of the recall data are not described in this monograph. They will appear in a forthcoming publication.

Tests

Close test. The exact word according to the original text was regarded as the correct answer; synonyms were not considered.

WIT. Number of correct answers according to standard format of the subscales Analogies and Antonyms was scored for each student.

Memory tests. The results of these computerised tests (Lexical Access and Working Memory), previously described in this chapter, were analysed according to procedures set for the tests (Ausmeel, 1988). See also chapter 10.

Rather than being used as results, all test measures were used as part of the background information, to describe the groups as well as the individuals. As the interviews were the most important objects of analyses they also constituted the main core of data on which I have based my conclusions.

Overview of the data

In order to describe how poor and good reading comprehension manifest themselves in the group of subjects, cognitive as well as metacognitive data have been collected. Figure 5 gives an overview of these data. It is intended to depict the different variables that are discussed in this study. They are all related to reading ability. The cognitive data were collected by means of tests and measurements, and interview questions (i.e., reading habits, and comprehension). In the study they have been used mostly as background information. The metacognitive variables are based on information collected in the interviews and thus pertain to the students' awareness of their own mental processes as it appears in their verbal reports. The position of "text and genre awareness" between cognition and metacognition is due to the fact that this variable can be ascribed to both domains - it contains a portion of factual knowledge and it has a metacognitive flavour, in that you may be able to name different text genres, but this knowledge in itself does not safeguard a definite awareness so that you can distinguish one from the other in a real reading context. In other words it also contains the ability to control ones knowledge.

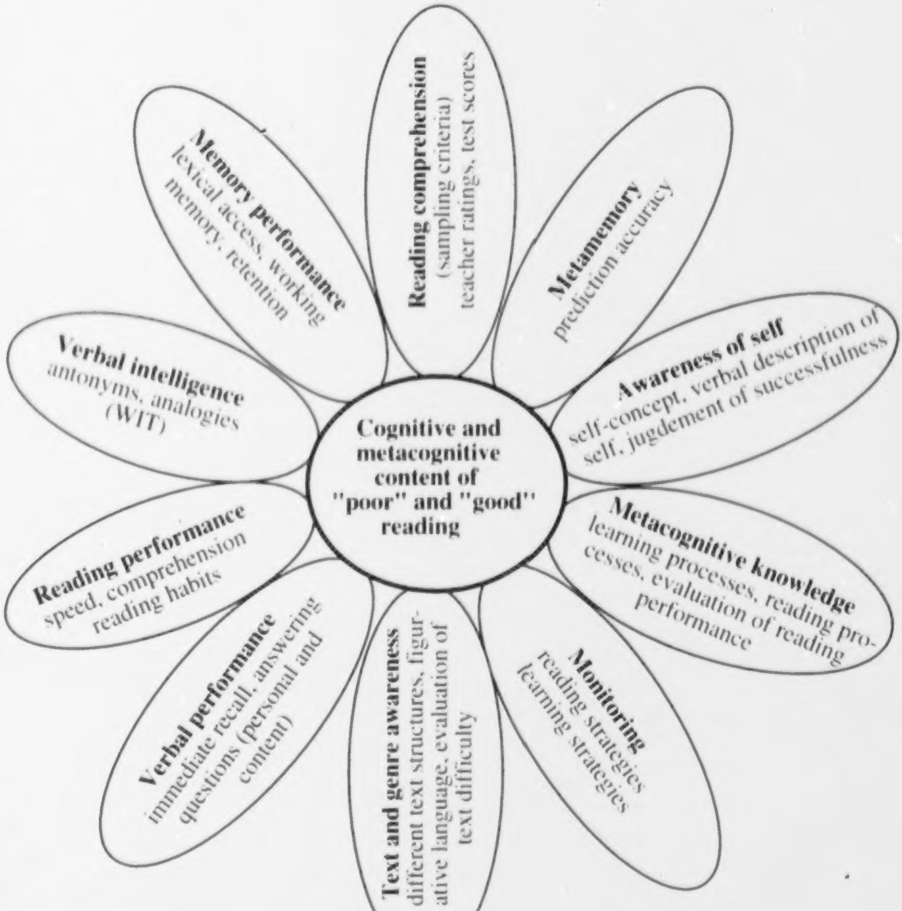
Cognitive and metacognitive content of "poor" and "good" reading
Reading comprehension (sampling criteria) teacher ratings, test scores
Metamemory prediction accuracy
Awareness of self self-concept, verbal description of self, jugdement of successfulness
Metacognitive knowledge learning processes, reading processes, evaluation of reading performance
Monitoring reading strategies learning strategies
Text and genre awareness different text structures, figurative language, evaluation of text difficulty
Verbal performance immediate recall, answering questions (personal and content)
Reading performance speed, comprehension reading habits
Verbal intelligence antonyms, analogies (WIT)
Memory performance lexical access, working memory, retention

Figure 5. *A tentative model of the components of reading comprehension as described in this thesis*

It has been my intention to study whether a "poor reader" differs from a "good reader" in all aspects depicted in the above figure. The study is descriptive, and there is no reference to social background, emotional or psychological status etc. Hence, I will not be able to reveal any causal relations or correlations between different factors. I do hope, though, to point out some crucial factors which could help to explain the differences between good and poor readers and give some indications as to what is "mendable" for the poor readers in this respect.

In the empirical part of this thesis, the data will be dealt with in the following sequence:

5. Students' descriptions of their own learning
6. Students' conceptions of the *how* and *why* of reading
7. Students' conceptions of differences between texts
8. Students' conceptions of genre, text character, and content issues, as concerns texts 1, 2 and 3
9. Students' self-description and their images of school, leisure and future
10. Students' cognitive abilities related to reading
11. Portraits of good and poor readers

Chapter 11 is an attempt to characterise good and poor reading, using four cases. The thesis will be concluded in chapter 12, where you will find a general discussion, based on the results, together with some educational considerations.

Chapter 5

STUDENTS' DESCRIPTIONS OF THEIR OWN LEARNING

It is perhaps natural for the elementary school student to connect the concept of learning with school, as this is the place where most of the *organised* learning takes place. Many students therefore do not think of learning as something that can go on anywhere else but in school. Their conceptions of learning pertain to activities like reading and listening to the teacher. More than half of my subjects give this kind of answer to the question *In what way do you learn best? (Q 13).* Behind the answers to this particular question one can sense a conception of learning as either *remembering* or *understanding*. Seven out of 53 students demonstrate an idea of a clear connection between learning and understanding, whereas 16 students in all refer to memorising when they describe their learning activities.

When answering the aforementioned question, the younger students, good and poor readers alike, claim that they learn best either by *reading*, or by *listening* or by *doing* something, e.g., writing, rehearsing or working in exercise-books. In grade 8 there are more poor readers than good readers who claim that they learn best when *listening* to the teacher:

> I suppose it is by listening - reading is not that good. (8P)

In the following I intend to account for students' responses to all questions in the interview that deal with learning (Q13-17, 30-31, 52-54). The responses will be treated either separately or in combination, so as to cover different aspects of learning activities.

Some of the grade 8 poor readers seem to have an externalised view of learning, in that they need to *do* something, like writing or "asking questions" when learning. The good readers give a more specific description of their learning activities; they may take advantage of earlier experiences and even use "visualisation techniques":

> I try to listen as much as I can, so that, often during an exam, when I reflect, on what has been said in class, I can sort of see the teacher in front of me in some special situation where he is talking about just that ... or maybe I think of what I've seen in a film ... Well, I often connect what I learn with a picture. (8G)

One good reader is very clear about the importance of her own level of activity while learning:

> I learn best when I'm allowed to decide for myself. If a teacher talks the whole lesson through ... it's very tedious, you can't listen to that. Perhaps you may read and work on your own, then it's much easier to

> understand. It's very tedious to sit and listen to a teacher who just goes on and on ... (8G)

Overall, poor and good readers alike perceive reading as the best way to learn, in spite of the fact that many of the poor readers are well aware of their reading problems, as demonstrated in the following example:

> I suppose it's by reading ... But I don't grasp much when I read. Don't remember much. *(Do you remember better what the teacher tells you at school?)* No, that doesn't stay for very long either. *(Maybe you don't concentrate?)* Possibly ... (8P)

It is as though these students cannot imagine any other way of learning, besides reading, at least not as concerns learning of theoretical subject matter.

One of the distinct differences between the poor and the good readers is that the poor readers more often express the conception that there is *only one* good way to learn: either by reading *or* by listening, whereas most good readers mention at least *two different* ways to learn. The good readers in both age groups thus seem to be more conscious of the relationship between learning task and learning mode: "It depends on what you're supposed to learn!" Some of them also state that they learn best by *both* listening *and* reading.

Taking into consideration the whole set of questions in the interview concerned with learning (Q 13-17), there are, in principle, four types of relations between learning activities and learning outcome that can be traced in the students' descriptions: success or not may depend on what the task is, where the learning activity is taking place, and whether or not the student is an independent learner. This "relativity" in learning out-come is present both when we compare in-school and out-of-school learning and when we discuss study skills for homework and exams (see further under the heading Study skills). Taken together the outcome of the responses to Q13-17 is as follows:

A. It depends on task, contents or subject

A1. It depends on the task

> ... I find it hard to study for an exam, maybe 30 pages of text ... in that case I want precursor questions, which we should get for all exams. I can get a question like this: 'Describe everything about agriculture in Sweden'. Then I read and try to get some sense out of it. That way it's much easier, because to read 20 pages in a book where maybe 70% is quite irrelevant, that's no good. (8G)

A2. It depends on the contents or the subject

> If it is vocabulary, I look at the Swedish words and then I try to write them in English before I look at the English words to find out which of them I already know. Then I repeat the words I don't know. */In Geography/* ... when there are maps I cover the names that I have written, look at the numbers and at the map to find the places, because on our maps there are no names, that is the maps in our books. Then I

> point out the places. */History/*... that is something we usually just read, and then I write sentences with facts. (5G)

B. It depends on circumstances

> ... I can't concentrate in school. There are too many people around me. (8P)

C. It depends on another person
C1. It depends on the teacher

> Some teachers are so very boring that I don't learn a thing by listening to them. (8G)
>
> We had a teacher once who couldn't explain anything properly. He just stood there writing on the chalkboard, and when we asked him what he was writing he didn't even answer. (8G)

C2. It depends on somebody outside school (mother or sibling)

> I read aloud and then I ask my mother to listen. (5P)
>
> My sister is reading to me, then I read aloud myself. (5P)

D. It depends on chance

> I read and try to rub it in, like. Homework I always do the day before. I read it through, thinking this is very important, I have to get it into my head, all of it. Sometimes I remember everything, sometimes just a little, other times I remember nothing. (*Why is that, do you think? Are you tired, or ...?*) No, I'm never tired, I always do my best. But it all depends. I don't understand. Maybe it becomes too much for my head all the time, just too much. (5P)
>
> I do read them, even if it's no fun, but then I read perhaps 2-3 times, and if I'm lucky it sticks on, sometimes it doesn't at all. (8P)

Although the difference between the groups in this respect is slight - all types of "dependence" appear in the four groups - it seems that the poor readers are more passively dependent on others for their learning, especially when doing homework (table 5). Thus, the differences are more pronounced as regards the degree of self-activity in the learning process. The good readers, the older ones in particular, specify their descriptions by giving examples of learning activities in different school subjects or situations. They describe their active choice of various methods or techniques when studying for exams or doing homework:

> I read it through a few times every day. Then I write things down, if it has to do with maps and such. In Maths I put questions to myself, or sometimes mother does. (5G)
>
> I learn best by listening and reading, it depends on what you are referring to. When you study for an exam, you always have some knowledge before. You listen during lessons, and then it's just to read the whole thing through, it sticks ... And maybe you can ask yourself questions, like 'How many inhabitants are there in the Soviet Union?'

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> You go around pondering ... But mostly it is by reading and listening ... I read newspapers, about what happens in the world, and I watch TV sometimes, too. (8G)

In other words, they seem to have a more flexible attitude towards learning, whereas the poor readers tend to use the same mode of learning indiscriminately without taking any initiatives of their own:

> Read and learn by-heart, mother asks questions. (5P)
>
> I don't know, but if you follow the lessons and so on ... that you are attentive. Then you learn quite a lot, I think. (8P)
>
> I read several times, keep on reading many times, then mother asks me some questions. (8P)

The following example is from a successful student, who demonstrates a rather active albeit surface-oriented approach to learning:

> I listen once ... If we are dealing with some difficult topic in Maths, for instance, then */the teacher/* goes through it. Then I ask her to come to me and explain it, because I think it's a bit hard when she's talking to the whole class, it's sort of confusing ... Then she tells us what to do. After that I work on the assignments during the lessons, and maybe I ask her once more after that, but then it's stuck. (8G)

This student purposefully asks for help by the teacher, he tries to solve the problem on his own; he demands explanations to be able to understand better, but he is not really dependent on the teacher. Such an active approach can be seen also in other students, mostly good readers, who seem to have accepted that the main responsibility for their learning rests upon themselves.

Q 15. How do you learn things outside school?

> I don't. (8P)
>
> You know that anyhow, you don't learn. (8P)
>
> I don't know, it just comes to me. (5G)
>
> That sort of thing you learn automatically. (5P)

Unreflective answers like these can be found among the younger students and the poor readers in grade 8. They further emphasise the strong link between school and learning, a link which is exposed in the following answers:

> In the same way, by reading and having someone ask questions. (5G)
>
> In the same way, only more thoroughly. Because in school I can memorise things only to a certain point, ... I must concentrate more, and I can't do that in school. (8G)

That one can actually *learn* something outside the school context seems almost unthinkable to some students. They hold the notion that knowledge which is not school-based is gained in ways that cannot be labelled "learning". However, after having established, in the conversation, that there is *school-based learning* and *leisure time learning*, most students expressed the view that the difference between the two has to do with *why* and *what* you learn (task and content) rather than *how* you learn (technique). The most typical feature in the answers to Q 15 is activity: outside school one learns by training certain skills and by watching and imitating others, mostly friends or idols, for instance from TV (sports or music), and in a few cases parents or other family members. In other words, one learns by doing things, since leisure time learning usually involves practical matters, whereas school-based learning deals with intellectual matters. Thus, *model learning* seems to be the most common form of learning outside the school context.

One obvious difference between poor and good readers, also in this context, is the degree of activity and independence. The young or less skilled readers commonly state: "You watch others"; "By looking and listening"; "I do it many times", whereas the good readers demonstrate a more conscious attitude:

> Well, let's take football, for instance ... When I started out in 1979 I used to watch TV every day. I saw how they were doing and then I went and did the same. Later on you get some trickier stuff to perform, but then of course you have the coach who shows you how to do things from bottom up, so to say. But you do watch the big people, the really good ones, and imitate them. (8G)
>
> Often I ask others and try to find out different ways to do things. Well, I don't exactly borrow books in the library for that. It's more by talking to people, adults, older mates, Mom and Dad. (8G)

Yet another piece of evidence as to the strong link between school and learning in the students' minds can be derived from the answers to the following questions:

Q 16. Where do you learn best - in school or outside? Why?

Q 17. What do you remember best? Is it what you learn in school or what you learn outside school?

The poor readers in grade 8 are most decisive on that point - with a few exceptions, according to their statements they either learn best in school *or* outside school (in equal numbers), and there is no "it depends" about it. In the first case they give reasons like "the teachers are talking and they help you by explaining things";"because you concentrate more in school, outside there are so many other things you want to do". Those who claim that the learn best outside school give explanations like "because school is boring"; "because it's so difficult in school"; or "maybe one is more interested in things outside school".

In the other three groups (grade 8 good readers, grade 5 both good and poor readers) very few answer "outside school"; instead an equal amount of students state that they learn best in school or "both - it depends on what it is". The explanations given in the "in school"-answers are: in school you learn better because there are teachers to help you; or there are so many things to learn; or you get easily distracted at home. There are a few students in these groups, however, who claim that their learning outside school is more efficient, because they cannot concentrate in school or because they want to do things their own way, which they often feel is not allowed in school. Students who answer "it depends" may reason like this:

> The things you learn outside school are voluntary, so it's more fun. In that case perhaps I learn what I think is important to know. Of course I learn a lot in school, too, but you can't possibly remember everything. If you are studying for an exam - one month afterwards it's all gone. That's a bit meaningless, isn't it. Things you think are worth remembering you will remember. (8G)
>
> In school, if it's a topic I like, then I'll learn that best. And outside school it's the same - what I like I learn. So, it makes no difference whether it's in or out of school. (8P)

One would perhaps expect congruence between questions 16 and 17, i.e., if students learn best in school they should also remember best what they have learned in school. However, although the two questions are asked consecutively, the students do not seem to make this connection between learning and memory. In fact, only about half of the students are consistent in their answers to the two questions, the most consistent group being the poor readers in grade 8 and the least consistent the good readers in grade 8. Most remarkably, only one student in the latter group answers that he remembers best what he has learned outside school - and this is not consistent with his answer to the previous question, i.e., he claims that he learns best in school but remembers best what he has learned outside school.

Among the good readers in grade 8 there is equal distribution between "it depends on what it is"-answers and "outside school"-answers. In addition to being the most consistent in stressing their relative success in learning outside school, the poor readers in grade 8 are most certain that they remember better what they learn outside school or "on their own", as they express it. It is likely that the grade 8 students' experience tells them that outside-school-learning is connected with better memory storage - half of the age group claims that - whereas the younger students in grade 5 to a larger extent maintain the efficiency of school learning. Only 20 per cent in the latter group say that they remember better what they have learned outside school.

> Mostly in school, because you read more thoroughly there. (5G)
>
> Things that I have learned on my own. That is, there are some things in school, too, that I have learned on my own. When a teacher is talking for 60 minutes there is not much getting through, partly because not all teachers are good at talking like that - it might go wrong sometimes. Then if one asks them what they mean by this or that, they get sort of peeved. (8G)
>
> What I do on my own. It can be in school or outside. (5P)
>
> I think it's what I learn on my own, if I have experienced it. (8G)

This last student is the only one who mentions "experience", although that could be the key issue here. However, an answer such as "I remember best what I do on my own" may be another expression of the experiential learning that takes place in school as well as outside. Most certainly such an expression indicates the significance of self-activity in the learning process; i.e., *self-directed learning*.

Study skills

It is open to discussion whether the use of specific study skills or strategies is of any significance as regards school success. In the 1960s discussions were intense on these matters, and results of experiments pointed in different directions. Training in the use of study skills seemed to have little effect; transfer from one learning situation to another was especially poor. At the same time there was no doubt that successful students went about their learning tasks in a more efficient way than their less successful peers. In one famous study, for instance (Miller & Parlett, 1974) the researchers found that some students learned "the name of the game" by being attentive to the teachers' behaviour and to other relevant signals in the environment. They were labelled *cue-seekers*. Such cue-seekers were more successful than students who were *cue-conscious*, i.e., aware of "the game" but less attentive as regards the rules of success. The least successful students were *cue-deaf* in that they did not discover any special rules that could help them in their studies.

The Miller and Parlett study dealt with university students; on the other hand, it seems that, in general, successful students learn "the name of the game" very early in their school career (Persson, 1989). They first learn how to learn, and being confident learners, they can easily learn the rules of success and how to apply them to their school situation. They learn to interpret the signals from their teachers as regards test questions, tasks and expectations; they are sensitive to the teachers' reactions, and they also act upon teachers' feed-back in an appropriate manner.

They can easily adapt to different learning situations as well as to different teachers by reading the contextual cues and seeking answers to questions like the following: What type of questions will appear in exams?

How does the teacher want me to respond to his questions? How much of this text is relevant information? How well do I have to prepare my homework? How should I behave during lessons to be regarded as a "good student"?

In her studies of task premises and joint activity in the comprehensive classroom Bergqvist (1990), for instance, concludes:

> Certain rules must be transparent for the actor if he/she is to become a competent member in classrooms. What becomes of a given assignment seems to depend on students' sensitivity for the relevant framing of a task as well as their familiarity with the larger context of the activity. There is a need to master the educational ground-rules and the *real* demands of the institution, that is, one has to know how schools 'do business'... (Bergqvist, 1990, p 121)

It seems that in order to achieve learning, *declarative knowledge* ("knowing that") is not sufficient. Unsuccessful students often know that they know; on the other hand, they are not quite clear about what it is that they know. Neither is *procedural knowledge* ("knowing how") sufficient. Some unsuccessful students can list various study techniques - and perform, more or less mechanically, each one of them in the situation in which it was originally trained - without being able to use them purposively in other relevant situations. In this sense, procedural knowledge can be regarded as a kind of declarative knowledge, i.e., knowledge about procedures or rules. However, to learn effectively you need to be able to combine the two in what could be called *conditional knowledge* (Paris, Lipson & Wixson, 1983) or "knowing when, where and why", i.e., under what conditions the declarative or the procedural knowledge is to be used. Several research studies have indicated that this lack of conditional knowledge is particularly common among unsuccessful students (Armbruster, Echols & Brown, 1982, Brown, Campione & Day, 1981, Garner, 1987). Even if they very well know what study techniques should be used, and how they ought to be used, they do not know when to use them or why. So, they refrain from using them, or, as in the second case below, use them without really taking advantage of them.

> Like some homework, English for instance, they say that you ought to write, but I have never written English assignments on paper. Well, of course, when we do it in school we must do it, otherwise I read the words through, try to learn them by heart. (8P)

> I read and then Mom helps by asking me questions. When I read, I stop and underline those words I think are most important ... and I repeat until I know it. And if I don't think I know Mom can help me. Then I also divide it into parts. (8P)

Three questions in the interview are dealing with text-based studies in school and with doing *text-based* homework:

Q 14. How do you go about learning at school or when you are doing homework?

Q 30. Do you read (a book/text that you have chosen yourself) in the same manner as when you read school texts?

Q 52. If you were to read this text for a test or an examination, would you read it in the same manner? If not, how would you have done it?[1]

Earlier studies in this domain (e.g., Marton, Dahlgren, Säljö & Svensson, 1977, Marton & Säljö, 1984, Svensson, 1984) have demonstrated that there are, in principle, two approaches to learning from text, a *surface* and a *deep* approach. The surface approach is characterised by an *atomistic* view as regards knowledge: what is to be learned and remembered is facts, important pieces of the text, which are presumptive answers to the teacher's questions and which do not have to relate to each other. The deep approach implies a *holistic* view of knowledge, which means a concern about understanding the text and about remembering the main ideas rather than isolated facts.

Svensson (1977, 1984) has made a distinction between the referential and the organisational aspect of learning from text. The referential aspect refers to whether the reader's focus is on the text itself or on the message of the text, i.e., *surface* or *deep* approach. The organisational aspect refers to whether the reader divides the text into smaller units and elaborates each unit in isolation (*atomistic* approach) or keeps an open mind as to the author's reasoning (*holistic* approach) and tries to find connections between different parts of the text, so as to create meaning (Dahlgren, 1990).

Very few of the students in my study would be characterised as adopting a deep approach to learning. Especially the grade 5 students seem to have a "piece-meal" conception of learning. They stress the importance of repetition and of getting help from mother or someone else in the family to "check up" the facts that they have crammed into their memory. It is also quite obvious that by "what is important" they usually mean isolated facts which can be excerpted from the text and thus provide them with answers to the teacher's questions.

Some typical answers to the questions about doing text-based homework are as follows:

> Mother asks me questions when I have read it three times. I read aloud. (5P)

> When it is vocabulary */in English/* I write the words down. Other things I just read once, don't write it down. What is important I will remember. (5P)

---

[1] This question was given after the students had read the expository text about Denmark.

> By repeating and being asked questions. Homework I read more than once and then somebody asks me. (5G)

There is little difference between good and poor readers in grade 5 in this respect, but some of the more successful students seem to be somewhat concerned about understanding the contents of the text:

> I read it many times, so that I understand. (5G)
>
> I read, and then I try to retell the content. I read several times, and then I explain what it is about. (5G)

Among the older students the pattern that appears is similar: repetition, sometimes reading aloud, and having mother ask questions:

> When I read a text? I read it through a few times. (8P)
>
> I read and then Mom helps by asking me questions. When I read, I stop and underline those words I think are most important ... and I repeat until I know it. And if I don't think I know Mom can help me. Then I also divide it into parts. (8P)
>
> I read a few times. If it is vocabulary I write down the words a couple of times. Otherwise I summarise the most important things ... (8G)

Few students mention that they are in some way thinking about the contents of the text - maybe this is something that goes without saying?

> I read it through and I think about it afterwards. (8P)
>
> First I read the text, then I repeat it to myself to check if I know it. I put the book away and think it through. (8P)
>
> I usually sit and read it through at first, then I wait for a while, and then I think "Did I get this?" And then I go on reading, and the things I don't know, I mark them. Then if there is anything I don't understand, I ask someone ... (8G)

The different strategies mentioned by the students are shown in table 5. As can be seen in this table the difference, on average, between good and poor readers in grade 5 is practically non-existent (2.4 for good readers, 2.6 for poor readers). It is considerable in grade 8 - the good and poor readers on average use 3.8 and 2.2 strategies, respectively - and it seems to be less in the way they go about reading the text than in the amount of *different* strategies each student claims to use.

Looking at this table from a "qualitative" perspective, it reveals that the less sophisticated strategies, like repetition, mother asking questions, rote-learning of vocabulary, are more frequent among young and poor readers. In grade 5 half of the poor readers' strategies fall into that category, in grade 8 the corresponding figure is 28 per cent.

Table 5. Students' study techniques[2] when doing homework. (n=12, 10, 13, 18, respectively)

Strategies	Grade 5		Grade 8	
	Good	Poor	Good	Poor
Read several times	10	8	7	11
Mother will ask questions	5	4	3	5
Read carefully once	1	1	6	3
Think the text through	2	1	3	4
Read aloud	1	4	2	1
Ask myself questions	1		4	3
Write keywords	2		5	1
Read notes, stencils etc.			6	1
Rehearse	1	1	2	1
Learn by heart		1		4
Vocabulary: write down, record on tape	1	3		
Partition in time and volume	1		2	1
Geography: Make blind maps	3	1		
Listen and think		1		3
Ask someone to explain			2	
Underline			1	1
Use precursor questions			2	
Summarise			2	
Read other books			2	
Have someone else read		1		
Concentrate on what's new	1		1	
	29	26	50	39
Means	2.4	2.6	3.8	2.2

Among the good readers the figures are 28 per cent in grade 5 and 14 per cent in grade 8, which points to the fact that the good readers in grade 5 are more similar to the poor readers in grade 8 in their ways of dealing with text-based homework than to the good readers in grade 8. It is also apparent that the good readers, especially in grade 8, have a more active approach to homework; they write keywords, read notes (and obviously once took them down in school, although they do not mention it) and stencils, use precursor questions (and claim that they actually ask the teacher for them), summarise, and read other books dealing with the same topic. Not many students are that active, but those who are, are the most successful students in the group. In other words, one could quite safely state that the good readers in grade 8 already have adopted some of the study skills which are necessary to become successful in higher education. This is also in line with the results reached by Svensson (1977), who found that successful university students had a more elaborated skill repertoire than less successful students.

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[2] Note that each student may have mentioned more than one item.

Concluding remarks

In this chapter I have discussed the students' conceptions of learning, and how good and poor readers describe their learning at school as well as outside school. Traditionally, learning is a school-based activity, and this view seems to be adopted by children in early childhood. Pramling (1987b), for instance, found that it is prevalent already among pre-school children. She also found that the young children's conceptions of learning, in principle, fall into three categories: 1) learning as *doing*; 2) learning as *knowing*; 3) learning as *understanding*. The grade 5 and grade 8 students in my study express similar conceptions but make some distinction according to where the learning takes place: learning in school is seen as *memorising* or as *understanding*, whereas learning outside school to a large extent is seen as *doing*, or being involved in. Further, according to the students, in school learning is achieved by reading or listening, or both, whereas outside school model learning is most common. To many students it appears that knowledge is imparted through a human agent (mostly a teacher), and what goes on in school has little or nothing to do with "real life".

It is obvious to most students - and it is certainly true - that reading is a fundamental skill, maybe the most fundamental one, as regards school success, a fact that makes it very difficult for a poor reader to be a successful student. As school in general is a literary institution the poor readers are likely to be regarded as poor learners. This is also how they regard themselves, because life outside school does not count in this respect. Many students in my study claim that they learn in the same way in school and outside school - if they learn at all. Being aware of their learning and/or reading difficulties in school makes the less successful students keep their two lives apart. What they know about everyday life is not traditionally *learned* but assimilated in some other way, automatically - one day it is just there! It is not recognised as a learning situation. Consequently, they cannot think of anything that they are good at or do well as regards learning, until it is pointed out to them that they are involved in many activities outside school, in which they may be successful as learners and performers (chapter 9).This compartmentalisation is more pronounced among the older students in grade 8 than among the younger ones in grade 5.

What complicates the picture for the poor readers/learners in their attempts to learn from a text is their inability to see relations between different parts of the text from which they are to learn (Dahlgren, 1990), something that will be discussed further in chapter 6. This makes them focus more on the text itself (surface approach) than its contents or message (deep approach), and it is most apparent among the younger students whose technical reading skills are limited or not yet automatised. As regards study skills this impairment is demonstrated in their inability to handle the knowledge that they might have about study techniques and their relevance to different learning material. Quite often they possess the information about rules and procedures ("declarative knowledge"), that are required when they are to be used in a particular situation ("procedural knowledge"), but they are unable to transfer their information and their techniques to other relevant or similar learning situations. They are familiar with the techniques but do not master the skills (Armbruster, Echols & Brown, 1982). Thus, what they do not possess is insight as to the conditions under which they are expected to take advantage of their knowledge ("conditional knowledge"). In other terms, they do not have sufficient metacognitive knowledge and control (Armbruster et al, 1982, Brown, 1982, Flavell, 1979).

Chapter 6

STUDENTS' CONCEPTIONS OF THE *WHY* AND *HOW* OF READING

For most people in the industrialised part of the world reading ability is taken for granted. It is a human right to be provided with basic instruction in school, and it is the individual's responsibility to make the best of this instruction. With this line of reasoning follows the somewhat simplified idea that lack of functional reading ability in adult age can be blamed either on inadequate teaching or on individual deficiencies. The taken-for-grantedness of reading is of course part of the socialisation into a literate society, but the question is when this socialisation takes place. Many children have very little experience with the written word when they first go to school, others have been exposed to various kinds of texts from very early age. There is a substantial amount of evidence that this early exposure to text - or lack of it - plays an important role in a child's reading development (Holdaway, 1979, Strickland & Morrow, 1989, and review in Dalby, Elbro, Jansen, Krogh & Ploug Christensen, 1983,) as concerns skills as well as attitudes.

In my study, the students were asked questions about the nature of reading, what reading is good for, how they learned to read, and what they experience when reading. In this chapter I will discuss the students' answers to these questions and, as far as it is possible, relate them to their reading alibilites. Apart from these general questions the students were also asked about their reading strategies in connection with reading the three texts, i.e., after each text they were asked how they processed the text.

Is reading necessary?

First of all I tried to find out how much the students knew about reading when they entered school, that is, as far as they could remember. The following two questions were thought to contribute to this information.

Q18. Were you able to read when you first went to school?

Q19. How did you learn to read?

In this regard there is a clear difference between the good and the poor readers. Nine out of twelve of the young good readers and ten out of thirteen of the older good readers answered "yes" to the first question above, without any hesitation. Moreover, six of the ten poor readers in grade 5 gave equally firm no-answers, and seven of the eighteen poor readers in grade 8 did not remember. The six in this group who answered "a little" were very uncertain: "Yes, maybe a little - I don't remember".

Table 6. Amount of students who could read before school-entry

	Gr 5G	Gr 5P	Gr 8G	Gr 8P
Yes	9	2	10	3
A little	0	2	3	6
No	2	6	0	2
Don't know	1	0	0	7

From the data collected in my study it is not possible to claim a causal link between early literacy experience and success in reading, but several studies in this area (e.g., Hagtvet, 1988, Lundberg, Frost & Petersen, 1988, Malmquist, 1958) have substantiated this link in various ways. From these studies one can conclude that early reading is a function of favourable intellectual development as well as an environment conducive to verbal activities, including reading, and that failure in reading can be a function of lack of stimulation, or immaturity, or a number of other factors. A cause-and-effect discussion is, however, left aside in this study, as no data about the early development of the students were collected, other than the information given by the students themselves. Here, as in other instances where verbal data of this kind are used, one has to be careful with the interpretations, because memory failure is possible (Garner, 1987). In the strength of their good reading ability the successful students may be led to believe that they were able to read before school. Utterances by some students seem to disprove such an assumption, however:

> Yes, when I was 6 I used to read the headlines in the newspaper. (5G)
>
> Yes, I learned when I was 3, my siblings taught me. (5G)
>
> Yes, I started to read when I was about 5. (8G)
>
> Yes, when I was about 5-6 I got a thick book by Astrid Lindgren for Christmas, and then I was reading that book during breaks in kindergarten. (8G)

Many a successful reader has some anecdote to tell about how they learned to read, whereas those poor readers who say they could read before school give rather short and naked statements.

> I had a baby-sitter - he said we should write a few words for me to read, so I learned those words. And then we used to read the evening paper to my Mum, articles about murders and such, so that my Mum got scared. (5G)

> I started to read comic strips in a weekly magazine that we had a whole bunch of in our country house. I really wanted to learn then, because I thought they were a lot of fun, so I started to stumble through them with some help from my parents. Finally, I could read, not very fast, but still, I managed ... And when I first went to school I could hustle my way through a word like "kronofogdemyndigheten" (magistrature) while waiting at a bus-stop. I was quite proud of that. (*It was a very complicated word for a 7-year old!*) Yes, but it did take time to read! (8G)
>
> Yes. I practised the letters. (5P)
>
> Yes. I think it was mother who helped me. (8P)
>
> Yes, a little. Well, mother taught me different words, and then I knew that you put the words together. (8P)

Since most of the poor readers in grade 5, according to themselves, could not read before school entry, in answer to question 19 they describe how they learned to read in school by practising the letters, drilling the alphabet, doing exercises in blending words together, etc. Quite a few of them have had extra training with a special teacher, alone or in small groups. They also described the whole process as a "struggle":

> It was hard. You blend, you see, it's called blending, when you put letters together, one by one, and then you combine them. It's very difficult in the beginning to blend together, word by word, sentence by sentence. I knew the letters before, that was not difficult, it was putting them together that was the hard part. (5P)

The good readers mention a variety of materials that they used in their first reading experiences, e.g., wooden blocks with letters, picture books, comic strips, newspapers, advertisements, posters, children's TV (for instance, the Swedish version of Sesame Street). A number of poor readers in grade 8 can not recollect how they first learned to read, but what they do remember is the struggle with the letters and in some cases their parents' eagerness for them to learn:

> It was difficult. I had fever attacks with cramps when I was little, so I had to do a lot of exercises at home. My Dad helped me a lot, and my Mum. They used to sit with me and try ... but then Dad got angry, because he wanted me to learn. He only wanted the best for me. I have no confidence ... Maybe I know how to ... but sometimes I make mistakes and I may use other alternatives. (8P)

Q20. Why should we be able to read? (What is the point of being able to read?)

Q21. What would it be like, you think, if you were unable to read?

Several earlier studies have touched upon the "why of reading" (e.g., Dahlgren & Olsson, 1985, Persson & Malmquist, 1979). Young children, before they learn to read, have a rather practical view of reading as a means to further learning and education, or as a requirement from society. Such pragmatic reasoning is noticable in my material as well, but as a result of their age and experience my students pinpoint slightly different aspects of the purpose of reading. Consequently, other categories have emerged in the analysis.

Nevertheless, by far the most frequent answer to the first question above (Q20) has practical implications - reading ability is necessary to survive in today's advanced society (Cat A). A more instrumental motive for learning to read can be traced in some answers: to learn more in school ("get better at things"), to get a good job or "become something"(Cat B). A few students have a more sophisticated view of what reading is good for (Cat C); i.e. reading enables us to surpass time and space, to communicate with people in other parts of the world, to relive history, or identify with our heroes.

A. Reading for survival or participation in society

A1. Survival

> If you are outside the house you must be able to read road-signs. If a sign says "no parking" and you can't read, then you'll get a ticket. And there may be a warning about a bridge that's broken ... (5P)

> It's very hard in our society not to be able to read, now that everything has to be written in black-on-white. You just can't manage without it. For all I know, you may be sent on a wild-goose chase. (8G)

A2. Participation

> Be in touch with things, otherwise you don't grasp anything. I think that's most important. (5G)

> You must be able to read in school, so that you can read the time-table and that, otherwise you miss a lot. You have to know where to go and what to do. (5P)

B. Reading for learning, a dynamic-instrumental perspective

> One has to know what goes on in the world, and then to study and become something yourself, so to say. (5G)

> If you want to continue your education in secondary school, and then if you want to travel. (8P)

C. Reading as a means to surpass time and space

C1. Reading as an act of communication

> So that you can sommunicate with others. (5G

> To be able to learn and understand things, if you are inquisitive. And then I think it's the same as being able to talk, I mean being able to talk to people, even if you don't speak with them directly, but by reading ... (8G)

C2. Reading as emotional experience

> You learn things and it's great fun. (5G)
>
> There are things written everywhere, there are lots of books - I just want to read everything. (8G)

Only good readers are represented in category C. While the poor readers in grade 5 express clear notions of the pragmatic and the dynamic-instrumental value of reading, the majority of the poor readers in grade 8 are more vague in their expressions, although the practical aspect is predominant:

> Well, I suppose it's good, if you want to do a lot of things. So, you must be able to read, it's good. (8P)
>
> Don't know. I suppose it's good to know later on ... I don't know. (8P)

The answers to Q21 are not entirely harmonious with the answers to the previous question. This is not a question of conceptions but rather a follow-up to Q20, so a phenomenographical analysis could not be applied for Q21, as was the case with Q20. The pragmatic or *practical* implications of not being able to read are accentuated in the answers to Q21, but also *informational/ educational* and *emotional* implications appear. In table 7 the distribution of these three aspects are presented (each student may have mentioned more than one aspect).

Table 7. Distribution of answers to Q21

Aspect	**Gr 5G**	**Gr 5P**	**Gr 8G**	**Gr 8P**
Practical	12	5	4	11
Informational/ Educational	4	4	3	5
Emotional	3	2	8	8

The *practical* aspects are expressed in terms of not being able to read signs or labels, newspapers or the subtitles on TV, not being able to cope, or:

> Then I couldn't lead a normal life. I would have to go live in the forest or something.
>
> You wouldn't be able to get a job.

Some examples of the *informational* or *educational* aspect are:

> One wouldn't know what goes on in the world.
>
> You wouldn't be able ot learn anything.
>
> I wouldn't be able to do my homework.

Those who emphasize the *emotional* aspect often use expressions like "awful", "terrible", or "shameful", but some are more informative:

> I don't think I could have put up with that.
>
> If everyone else could read but me, I would try to learn straight away... I don't know, it would feel empty ...
>
> I couldn't tell anyone.
>
> Not being able to read is a handicap. If you don't know anything about what goes on ... just sitting in the living-room listening to Dad reading his newspaper ... that's no fun. It's better to be able to read it yourself. So, it's like being deaf or blind, almost ... yes, blind is more like it.

The taken-for-grantedness of reading is also expressed in statements like "It's hardly possible /not being able to read/"; "It's difficult to imagine, because I read so much."; "There are things to read everywhere". Only one student (a poor reader in grade 8) claims that there could be another solution to the problem than the one suggested above:

> Wouldn't be too bad ... I could get to know things from my parents.

In other words, reading is a skill that it is difficult to do without, according to these students. When emphasising the practical implications of reading ability, they build on their experiences in school, where reading is a much used activity in all subjects. Dahlgren and Olson (1985) found that children before entering school mentioned two major purposes for learning to read, one based on *requirements* from the environment, the other on the *possibilities* embedded in reading skills. After one year in school the *requirements* category had been strengthened by the demands they had met to raise their reading competence. It seems that the students in higher grades modify and widen their perspective as regards the purpose of reading. The students in both grade 5 and grade 8 in my study have registered the requirements from school ("to learn things") as well as from society ("to cope with everyday life"), regardless of performance level, but it is mostly among the good readers that the students view reading as a means to personal development ("to be up-to-date so that one understands things", "to get to know things, if you are inquisitive").

Q22. What do you think others think about people who can't read and write properly?

Q23. What do you think yourself?

Admittedly, such questions are not easy to answer; especially the first hypothetical one. Many of the 8th-graders (38 per cent in all, and half of the poor readers) have no opinion, they either do not want to express their views, or really have never given this topic a thought. The other half of the poor readers in grade 5 think that people tend to feel sorry for those less fortunate than themselves in this regard. The following responses to Q22 appear (not in order of frequency):

1. That they are not very smart
2. That it's just too bad if they didn't learn at school
3. That it depends on what kind of a person it is - some of them *are* stupid
4. That it depends on whether they make an effort or not
5. That they are no different from others, only they can't read
6. They feel sorry for them.

Some students have quite a lot to say about this:

> That varies ... Some who take reading for granted, think that they are barmy, but some people understand that being able to read is not self-evident to everyone. Some have learning problems, others have nothing to read. Those who know that feel sorry for them. (5P)

> I think it differs from one person to the next ... For some it may be that it seems that they don't want to learn, they are lazy and just don't give a damn. Others you may feel sorry for, because they try but it doesn't work. Because there are some who really try, and you can feel sorry for them ... It's really unfair. I mean if you try and try and it still doesn't work. (8G)

In the group as a whole, 49 per cent have more or less the same opinion as the one they attribute to other people about those who cannot read, whereas 26 per cent have a more positive opinion than they think other people might have, and 25 per cent say that they do not know.

The same opinion:

> *Q22.* That they are just bad in school. *Q23.* There is nothing wrong with them, they just didn't learn. (*Why is that, you think?*) They didn't listen. Maybe they were talking and didn't pay attention. (5G)

> *Q22.* Don't know... I suppose they feel sorry for them, but, in general people do nothing to help them. *Q23.* I suppose I feel sorry for them, too ... that they don't get to ... I mean, in school ... we have those in

> our class who have some difficulties. I think it's a shame that they can't get more assistance in school. (*Well, some do get ... but it doesn't always help ...*) I think they get helped in the wrong way. You have to change things in their homes, they have to read more at home. (8G)

> *Q22*. That they are a bit dense. *Q23*. There's one in my class. You get a bit irritated, sort of ... I wonder, maybe her father used to beat her when she was little. (8G)

A different opinion:

> *Q22*. They notice that they are not as smart as others. *Q23*. I don't think much about it. (5P)

> *Q22*. That they are no good. *Q23*. They are not bad because of that, only they can't read. (8P)

> *Q22*. Some think they are not quite right in their head. *Q23*. I feel sorry for them mostly, not being able to read, because it's really good to know how to read. Because, otherwise you can't learn anything. (8P)

Many good as well as poor readers express a certain amount of compassion with those who cannot read. One would expect that the poor readers would connect these questions with their own experience as poor readers, and some of them actually do so in their answers to Q23:

> I think it's a big problem to them. Since I've had such problems myself I know what it's like. (5P)

> I feel sorry for them, because I know myself what it feels like. (8P)

> Don't know what to say about that...But I myself think it's hard. I had reading problems myself when I was in grade 4. I went to a special teacher. I had a friend there, too, but I was better than him at reading, so it was kind of difficult when he was reading, when he stumbled on every word, almost. (8P)

Some good readers have a more "normative" perspective:

> It depends on what kind of people they are. If the case is that they don't have any money to go to school, then I feel sorry for them. But if they just don't want to go to school and learn, then they are silly. At least they could finish 9th grade and then stop. (5G)

> They are to be pitied, because you think it's a bit strange, when you yourself don't have any problems in learning ... Strange and hard ... that they can't learn. (8G)

> I feel sorry for them. They can't help that they have problems with reading. (*So, what do you think should be done about it?*) It depends on what they themselves want. In class I think the teacher should let them read more, study Swedish more. (8G)

> I don't think there's anything wrong with that, it all depends ... Maybe someone doesn't want to learn to read ... I mean, one has to respect them for that. We all have different personalities, you can't force anyone to do something. But of course, if they don't get any

> opportunities, they don't value less than others, at least that's what I think. After all, there are other ways to communicate. (8G)

Overall, the necessity of being able to read seems obvious to all students in my study, and the practical aspects of reading ability are emphasized in all groups, maybe because of the way the question is phrased. Later on in the interview, question Q35. *(What kind of texts do you prefer to read if you make your own choice?)* produces answers indicating that the students, poor as well as good readers, use reading as an instrument for their imagination as well as a means to escape from reality for a while. Most students in all groups prefer "exciting and entertaining books" (Persson, 1992), but some good readers in grade 8 have somewhat higher demands, they want texts that can stimulate their imagination and yet maintain a link with reality:

> ... I like all the books I've read, but most of them are about people and their way of life. For instance, I have read about people in the 18th century, stories about how they were living, and how people live today. It's fun to read about daily living in earlier years and today. (8G)
>
> I like to read about things that happened long ago. And about adventurous travels, like the Kontiki, where they were travelling on a raft across the sea. About discoveries, and different parts of the world is also interesting. (8G)

What do we do when we read?

One set of questions in the interview deals with reading as a concept, i.e., what kind of a process the students think reading is. There is a great variety of responses, although some students at first claim that they have never thought about this.

Q28. What is reading? How/what do you do when you read?

Q29. What are you thinking about when you read? What happens in your brain when you read?

In principle, there are four categories of answers to either of these questions, apart from the "don't know"-category (Cat E). The students describe the *technique* of reading (Cat A), or the *comprehension* part of reading (Cat B), they see reading as an *automatic process* (Cat C), or a *combination of technique and comprehension* (Cat D).

A. Reading as decoding

A1. Letter by letter blending

> I look at the letters and put them together to make sentences. (5G)
>
> Well, you read a lot of letters. (8P)

A2. Word-oriented technique

> Look at the words and then I know, I don't have to blend. (5G)
>
> You look like this ... you don't read every letter but the whole word. Sometimes you read a whole sentence, and then you understand. (5P)
>
> You concentrate on the words. (8P)

A3. Insubstantial

> You read what is on the page. (5P)

B. Reading as understanding

> What do I do? Most books I read are about people, how they live and that, so I try to imagine. I sort of create when I read ... create pictures. It's quite fun. It functions that way, I read and understand. (8G)
>
> You read. You read so that you understand. If you read a book, for instance ... so that you understand what it's about, if it's a good book and that. (8P)

C. Reading as an automatic process

> Yes, what is it really? Well, I don't know. It's just that you read. (8G)
>
> You disconnect everything else and just read. I couldn't do that before. (8G)
>
> It just flows along, you don't really think much. (8G)

D. Reading as a combination of decoding and understanding

> Well, you combine small letters to become words, then you get them together to make sentences, and create meaning. Often it's ... like in whodunnits, there's a detailed description of the scene of the crime, and while you are reading little pictures appear which you try to place into a pattern. It's often like that, when you read you have to imagine quite a lot ... at least I do ... to make the proper connections. (8G)

E. Don' t know

It is obvious that the younger students are much closer to the days when they learned to read, a fact reflected in their answers to Q28. In grade 5 two thirds of the good readers and 90 per cent of the poor readers give answers where they describe the technical side of reading, whereas 30 per cent of the poor readers in grade 8, and none of the good readers, give this type of answer. On the other hand, almost half (six) of the good readers in grade 8 describe reading in terms of decoding as well as understanding, - they have a high level of awareness in this regard - and five of them describe it as an automatic process. As many as ten (more than half) of the poor readers either say that they do not know or that they have never given it a thought. It may be worth noting that among the "highly aware" are some of the most advanced readers in the group, which indicates that, although, once established as fluent, reading is an automatic process, which needs little attention (LaBerge & Samuels, 1985), it is still open to reflection when required. Yet another observation pointing in the same direction can be made as regards the next question.

The phrasing of Q29 can, to a much lesser degree, be associated with the technical side of reading, a fact which is mirrored in the responses. While 41 per cent in the younger group are not able answer, most of those older students who could not answer the previous question find an answer to this one. It seems that, once their awareness was evoked, the metacognitive knowledge is actually there, and the reading process becomes an object of reflection.

The majority (57 per cent of all the students and 71 per cent of the 8th-graders) say that they are thinking of the content while they are reading, but there are some who maintain that reading is an automatic process which you cannot describe. Apart from these two varieties, another type of answer emerges among the 5th-graders, one that has to do with a proposed "mental lexicon" (number 2 below).

Overall, the following types of answers are found:

1. When I read I'm thinking of what the text is about.
2. There is a list of words in my head
3. Reading is automatic and I can't describe it
4. Sometimes I'm thinking about other things

The most common metaphor for reading comprehension among these students is to "make pictures in one's head" and imagine what happens; another metaphor is to "move into the story".

> Well, pictures turn up every now and then. (*What kind of pictures?*) Well, you know ... what happens. It's very often like that when I read ... it becomes like a picture in my head, as if I see what happens in reality, like ... I mean what happens in the book ... (8P)
>
> I don't think it looks like anything special, actually ... Sometimes I can listen to music on the radio at the same time when I'm reading. It has happened that they announce, let's say three pieces of music, and I hear that my favourite is coming and I plan to listen to it, how nice! Then all of a sudden I wake up with the book, and that piece is long gone. It's like I've moved into the book. Sometimes I can actually see them, what they are doing when it's really exciting. I remember one book especially, by Enid Blyton. There was this painting that someone was about to steel, and I could see how they went into the building to look for leads, and then I grasped it all. (*Yes, it gets more or less like a tv-screen inside your head.*) Yes, I know nothing better than being totally absorbed by a book. (8G)

As for the type 2-answers, suggesting a mental lexicon, it is difficult to know whether they are content or technique oriented:

> /My head is/ full of words. (5G)
>
> You think of the content, but the words are pre-programmed. The words you don't know before you have to look them up in a dictionary. (5P)
>
> It's like a lot of flashes ... as if there is a slip of paper with words on, but some of them disappear very quickly. (5P)

Some answers are indeed very vague:

> Don't know ... It comes in and goes out and comes back when I've finished the book. (8P)

It is probable that many adult and experienced readers would describe reading as automatic in the first instance, and among my students it is mostly good readers who express this view.

> Meanwhile I'm reading I don't think of anything. At least that's what it feels like after I've finished reading. (8G)
>
> I think about exams ... but otherwise I don't know ... it just happens, I don't really give it much thought. (8G)

There are some who describe their difficulties in concentrating on what they are doing or in understanding what they read:

> It depends on whether it's interesting. If there is a long paragraph, then I may think of something else, like What am I going to do after I finish my homework? So, maybe I just read some of it, and then I catch myself thinking about something quite different. Then I have to read it over again. (8G)
>
> I try to think about what I'm reading ... natural science or whatever ... It depends on what the exam is about ... (*So what does it look like inside your brain when you are reading?*) There are question-marks sometimes ... when I don't understand. (8P)

Overall, the responses to questions 28 and 29 exhibit a fairly good awareness among the better and older readers of what reading is about. These results correspond well with similar studies (e.g., Johns & Ellis, 1976, Medwell, 1991), although most previous research in this field has been carried out with younger children, predominantly preschool and lower primary children. Medwell (1991), for instance, inquired whether it matters what children think about reading. She found that descriptions of the reading act differed between good and poor readers. In general, poor readers described reading as decoding or word recognition, average readers as either decoding or understanding, and good readers described reading as a cognitive process, involving decoding as well as thinking and understanding. In my study, judging from students' responses, it can be concluded that not only reading performance level but also age and experience influence the way children perceive reading, i.e., among the poor readers in grade 8 there are those whose awareness about the reading processes is higher than could be expected.

What kind of reading strategies do students use?

As mentioned earlier, it seems that the reading process is open to reflection, and several attempts have been made to study the process on-line, i.e., while it is going on ("think-aloud", e.g., Glazer, 1992), and the most sophisticated methods have been tried out by computer (e.g., Jarvella, Lundberg & Bromley, 1989)[1]. It has been argued that this procedure may disturb the process and change the subject's focus of attention, but also that it can yield data about mental processes that are not easily available in other ways. The strategy questions in my study make up a minor part of the interview. Nevertheless, they yield some valuable information about the way students think and reason about their own reading.

The questions that are dealt with here emanate from different sections of the interview, A3. About reading in general (Q30); B3. Reading strategies (Q47-51, given after each text, i.e., three times). They are as follows:

Q30. How do you read a book/text that you have chosen yourself? Do you read it in the same manner as when you read a school text?

Q47. How did you go about reading this text?

Q48. Was there anything special you thought you would remember? What? Why?

Q49. Did you go back in the text to read something over again? Where? Why?

Q50. Did you stop reading at any point? Where? Why? What were you thinking then?

Q51. Did you think of other things than what was in the text? What, in that case?

First of all, an overview of the responses to Q 30 and 47 yields three general purposes (rather than strategies) of reading a particular text: read the text through ("just read" or get it done); read to remember; read to understand. The distribution in the groups is given in table 8.

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[1] For a survey of research, and a discussion of "think-aloud protocols" and their use, see Garner, 1987.

Table 8. Overview of general reading purpose[2]

Group	**Read through**	**Read to remember**	**Read to understand**
5G	6	2	4
5P	4	2	4
8G	0	3	9
8P	2	2	3

In grade 8 there is a clear difference between the poor and the good readers in that the good readers are more inclined than the poor readers to read with a direct purpose. This difference is not present in grade 5. Looking more in detail at the responses to Q47, given after each text, "just read through" is the most common answer for all three texts, but especially for text 3, the folk-tale. It could be expected that the school-book text (text 1) to a higher degree would motivate the students to read for the purpose of remembering. As the research session was not quite like a real reading situation, the obvious purpose of reading these texts was expressed by the researcher in the instructions: read the text, retell it and answer questions. The instructions were the same for all three texts. Nevertheless, many of the students actually distinguish between the texts (see chapter 7) and apparently do define the reading task according to the text at hand. So, in this sense one can say that they meet with the aim of this part of the study, which was to study what strategies the students spontaneously use (or rather what strategies they *think* that they use), when they themselves define the task and set the purpose for their reading.

Because the same questions about strategies are asked after each text it is possible to compare the responses for the three texts. This comparison results in four categories based on the students' descriptions of how they read the different texts.

1. They read all texts the same way
2. They vary speed between texts
3. They use different strategies for different texts
4. They vary both speed and strategies.

This is how the students themselves describes what they are doing when confronted with different texts. How they actually go about it can not be established in this study, with a few exceptions: reading speed was measured, and some observations were made during the interview. It was to some extent possible to observe whether the students did or did not look back in the text and to control against their statements in this respect. However, since no special instrument was used, for instance to measure eye-movements, these data are not very reliable and have not been elaborated further. Table 9 summarises the students' descriptions of reading strategies for different texts.

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[2] The responses from two students in grade 8 (one in each subgroup) were not possible to classify.

Table 9. Summary of variations in reading for three different texts as perceived and expressed by the students

Group	No variation	Variation of speed	Variation of strategies	Variation of speed and strategies
5G	7	1	1	3
5P	6	1	1	2
8G	3	0	6	4
8P	13	1	4	0

In 29 out of 53 cases (55 per cent) the students say that they read the same way regardless of the kind of text they read, three students say that they vary the speed, twelve (or 23 per cent) that they vary the strategies according to the text, and nine (17 per cent) that they vary both speed and strategies. According to the reading speed measures eight of the twelve who claimed that they varied the speed actually did so between at least two of the texts. No questions were asked specifically about reading speed, which means that the statements about speed were spontaneous. It is possible that more students would have commented on this had they been asked.

A collection of purposive strategies includes:

> I read and stop when there is something I don't understand (8G)
>
> When there are many new facts I usually reread passages. (8G)
>
> I knew about this before, so I could read this faster. (5G)
>
> I was reading and thinking about some of the important facts. (8G, 5P)
>
> I read it through, and then I looked if there were any difficult words (5P)
>
> I read it passage by passage and thought it through carefully. (8G)
>
> The first part I read a little more slowly, because I wanted to see what it was about, and then I realised that I could read on a bit. (8G)

> I read line by line and made sure that I didn't skip anything. (5P)
>
> First of all I go through it to see how big the text is, how it is structured and that, and then I begin to read. (8P)

According to their statements, some of the good readers are conscious about their use of different strategies, whilst the poor readers to a large extent say things like "I just read it through", or "I read it through and was thinking what it meant", or "I read it through and reread some parts", that is, they take a more passive stance to their reading

During the interview the students were asked if they stopped while reading, and if they went back to reread some portion of the texts. Surprisingly many said that they stopped and/or reread some passage in text 2, which according to the readability index (chapter 4) was the easiest text. Only the good readers in grade 8 - as a group - in this respect followed a pattern that was expected according to the readability level of the text: all but two stopped at least once in text 1, seven out of thirteen made a stop in text 3 and five made a stop in text 2. All in all, only nine of the 53 students claimed that they did not stop or go back to reread a word or a passage in any of the three texts; four of them were good readers in grade 5, two were poor readers in grade 5. It means that only three of the 18 poor readers in grade 8 said they did not stop or go back. This is contrary to earlier experience, which says that poor readers do not use the strategy of going back to reread a portion of the text when they fail to understand or when they loose concentration. Some comments from the students:

> No, I don't think I stopped, but it's something that is very hard to remember. (8G)
>
> I probably didn't bother, because I wouldn't have had any dictionary here to look something up, anyway. (8G)
>
> Yes, well...when I got to this part about the milk ... then I began to wonder how much was left to read./about text 3/ (5P)
>
> Yes I stopped, when it was hard to understand, because the words are not in the place where I want them. Maybe they write it in a different way than I would have thought. The writer writes in one way and I want it to be written in another way. Like here in the last passage */text 2/* (8P)
>
> Once, I think. There was a word, that I ... well, maybe I understood, but it didn't make sense, like. This passage about some of them minding the head and some others pushing from behind ... and it just didn't make any sense. (*Why was that?*) It just doesn't work, it sounds crazy to me, so I had to reread it. /about text 3/ (8P)
>
> Yes, there was a word that I didn't understand, but then I went on and I understood what it meant afterwards. (5G)

The questions about what the students specifically notice in a text do not yield much information. About one third answer "nothing" and one fourth give the answer "don't know". The most specified items are given for texts 1 and 2, as could be expected; e.g., geographical names, names of objects, and facts that are mentioned in the texts. About texts 1 and 2 some students say that they knew most of it before. There are some comments, too, that are not exactly relevant to the question, e.g., about text 1: "it was so hard to concentrate", about text 3: "it's easy to read a story that is holding together" or "it's interesting and funny - it sticks /in memory/ without any special effort".

The answers to Q51 (*Did you think of other things than what was in the text*) demonstrate a difference between the texts, in that there are very few disturbances for text 3 and most disturbances for text 1. This is to be expected, as you have to ascribe more attention to a factual text (text 1); it is less capturing, and there is no exciting end of a story to be curious about. Therefore you get easily distracted. The older and better readers seem to be more aware of fluctuations in concentration, especially for an instructional text like text 1 (see next page). The relative amount of no-answers to this question are 42, 57, and 72 per cent for texts 1, 2, and 3 respectively. Only two students say anything about being disturbed or thinking about "what I would do after school" while reading text 3. The others had been thinking about the contents of the story, how it would end, how things were in the old days, why the people in the story behaved the way they did, or they were imagining what the whole setting looked like.

Reading text 1 had been much less involving. When asked what they were thinking about while reading it, the students mention, for instance:

text-related items

> it was hard to concentrate (5G)
>
> there were so many things to memorise (5G)
>
> about Denmark, how things are there (8G)
>
> I remembered what I had read before about this, for the exam we just had (8G)

non-textual items

> I was disturbed by a sound outside (5P)
>
> my eyes were tired (5G)
>
> thinking how much was left to read (5P)
>
> wondering about your tape-recorder (8G)
>
> I came to think of my dog (8G)
>
> nothing special, but definitely not the text all the time (8P)
>
> what I will do later today (8P)

For text 2 the collection contains more text-related items and less non-textual ones:

text-related items

> that I knew most of it before (5G)
>
> that I've experienced the same thing on the train (5G)
>
> what a whirlwind is (5P)
>
> that I have to remember this (5P)
>
> that this is a text for smaller kids, in middle school perhaps (8G)
>
> what the sun is like, with nuclear reactions that happen up there all the time (8G)
>
> about leap year, what that means (8P)
>
> about things I've learned in school (8P)

non-textual items

> the phone rang (8P)
>
> what time it is, because this is our last period for the day (8P)
>
> there was someone shouting outside (5P)

The information given by these students points to the very important fact that narrative texts demand less concentration and less effort than expository texts, especially those that contain a lot of isolated facts. This is true for good as well as poor readers. For the poor readers the mere thought that they *have to* remember as much as possible makes it more difficult to concentrate on the content. And their relation to reading in general is a problematic one - the smallest disturbance (a sound, a flicker of light, an irrelevant spot on the paper) is enough to make them loose track of what they are reading.

Do they understand what they read, and how do they know?

> (*Do you usually understand what you read?*) Of course I do, otherwise I can't read, if I don't understand what I read. (8G)

This is the point of reading as expressed by a good reader - without understanding, no reading. However, knowing that understanding is an important part of the reading concept is not the same as actually being able to understand what you read or even being aware of whether you understand or not. Several researchers (e.g., Baker & Brown, 1984b, Lundberg, 1984, Malmquist, 1989) have pointed out that many poor readers fall short in this respect. They are less likely than good readers to notice anomalies in a text, to detect their own reading errors or to take action when they do not understand. In my study the students were asked the following:

Q24. Do you usually understand what you read?

Q25. How do you know?

Q26. If you don't understand, what do you do then?

To the first of these questions 64 per cent of the students answer "yes" with no hesitation, and only six students, i.e., 11 per cent (all poor readers, four in grade 5 and two in grade 8) answer "no". The rest say that it depends on certain conditions. They have difficulties in understanding, for instance:

- if there are many difficult words
- if I read too fast
- if the text is boring or old-fashioned
- if I think about something else
- if it's a school-book (I understand other books)

Most such conditional statements come from poor readers, but also good readers may sometimes have problems with "difficult words", they claim. On the other hand, their choice of literature may be a little more advanced:

> I don't read very much, but when I read it's mostly books with old-time settings and old language, old-fashioned Swedish ... I mean like the old heroic poems and Icelandic sagas and that. They are quite hard to understand, some of them ... but most of the time it's all right. But I must have a dictionary beside me when I read. (*What about those texts that you have to read in school or for homework?*) They are too simple. (8G)

Compare this utterance with two from poor readers of the same age, and you may wonder about how unevenly fate apportions her favours:

> Most of the time, I suppose ... Books and such maybe I can grasp, but reading for homework, no way! (8P)
>
> Not if I read fast, but if I read slowly I understand. (8P)

It seems that few of the poor readers have any doubts about their reading comprehension when they are asked in general terms, and yet, in other instances they seem to know about their failures. It may be that such a question is too general (Garner, 1987). So, how do they handle their documented comprehension problems when they encounter them during reading? Do they know when they are on the wrong track (Q25)? And if so, do they have any strategies at hand that they can use? The responses to Q25 (*How do you know /if you have understood/?*) fall into four main categories, apart from the "don't know"-category.

1. Coherence

The students in this category emphasise the connectedness, that "things have to hang together", that a text must make sense - if it does, then you know that you have understood.

> For instance, after I've read a certain verse, or a chapter, I think it through. Afterwards I usually go through the whole story again and fantasise about it. Create little pictures in my head. If there's something that doesn't quite fit, then I go back to the book and check, and then most of the time there's something I didn't understand, so I look it up. (8G)
>
> I understand it in my own way, make my own conceptions, sort of. Then of course, I don't know if it's right or wrong, but I read and think about what I'm reading. *(Does it ever happen that you misunderstand?)* Yes, that happens sometimes - 'how funny ...' - and then I have to read it again, so maybe I understand, if I read a book and make a mistake. But usually you get it if you read it over again. (8G)
>
> I notice that as I read. Because afterwards I may be thinking for a long time about what I've read. So, if someone is talking about the same thing, I may insert some sentences that I've read somewhere. Then I know that I've got the connections right and not just glanced it through. (8G)

2. Consequences

In this category the students are thinking about what follows after the reading itself - if you have understood you can answer questions, retell the story, make a model (2a), or just simply "remember" (2b).

2a. You carry something out

> I understand the content. If I've read a book and someone asks me to tell what it is about, then I realise that I've understood the book. (5G)
>
> In social studies, for instance, if we've read a passage and the teacher asks questions about it afterwards, if I didn't read so that I could understand, then I wouldn't be able to answer any questions. (5P)
>
> That's obvious afterwards. *(How, you mean?)* Well, let's say, you read the instructions how to make a model, you follow the instructions and make it, and then perhaps you can make it on your own later on without. (8P)

2b. You just remember

> If you don't remember, you've not understood. (5P)
>
> Then I remember what's in the text. (8P)

3. Intuition

Answers in this category are vague in that the students express a general "feeling" about having understood the text (3a), or they claim that if only you know all the words, the understanding takes care of itself (3b)

3a. General sense of understanding

> I sense it, can explain to myself. (5G)
>
> It just gets into my brain. (5P)
>
> Well, you understand the content, like in books, for instance ... You understand. Not very difficult books, though. I've not started yet to read difficult books, philosophical and that, where you have to do a lot of thinking. (8G)
>
> There are connections in your brain. (8P)

3b. Word knowledge

> I do if I know what the words mean, then I know what I'm reading. (5G)
>
> If I don't understand, then it's some silly word ... (8P)

4. Chance

Some students seem to rely on chance rather than any conscious monitoring of their reading comprehension.

> I read words and I try to bang them into my head /.../ And then I read a whole lot of other things which I don't remember, but maybe I remember the first things I read ... or the last things. (5P)
>
> It's just by chance ... I don't know. (8P)

5. Don't know

The older students are the only ones with type 1-answers, five of thirteen good readers, one of the eighteen poor readers. Type 3-answers are equally common in both grade 8 subgroups. The most common type of answer among the poor readers in this age-group is type 2b, followed by types 2a and 4. Among the good readers in grade 8 the most common answers are of types 1 and 3a. Again, memory stands out as a crucial point for the poor students (see also Chapter 10 about cognitive abilities). It is also worth noting, that none of the good readers in grade 8 fall in the "memory"-category (2b), probably indicating that this is not a problem to them. Most good readers in grade 5 give answers of type 2 and 3, whilst the poor readers mostly give answers of type 3 and 4. Few students failed to answer. In conclusion, the answers to Q25 somewhat modify the impulsive "yes" as an answer to Q24. For good readers in grade 8 comprehension is a matter of coherence or intuition, a general feeling of understanding - the text has to make sense; for poor readers it is a matter of memory or chance. In the younger group memory or being able to answer questions (which of course depends on memory as well) are most important among the good readers, whereas the poor readers mostly seem to have a rather hap hazard idea about comprehension - it is a function of word knowledge or chance.

The responses to Q26 (*If you don't understand, what do you do?*) give a hint about the students' ideas of comprehension but also add to the picture as concerns reading strategies. A list of these strategies is shown in table 10.

The most common strategy in all groups is to ask somebody. In school that usually means asking the teacher, although there are a few who actually say that they would ask a friend; at home it means asking a parent or any adult available. Rereading is also common, and in many cases this seems to be all they do - without any further reflection. However, there are some (mostly good readers) who use rereading as the first step to some other strategy, like using context to make inferences about the meaning of single words, asking the teacher, or looking a word up in a dictionary. In grade 8 the good readers to a large extent (77 per cent) use more than one strategy - if one does not work there is another alternative - whilst 78 per cent of the poor readers use one strategy only. In grade 5 there is no difference between good and poor readers in this respect.

Table 10. Students' strategies to remedy failure in comprehension. (Some students may have mentioned more than one strategy)

Strategy	**5G**	**5P**	**8G**	**8P**
Ask someone	8	7	8	8
Reread	4	3	6	7
Use context	0	0	5	0
Use dictionary/wordlist	0	1	4	0
Go on reading/skip	0	1	2	4
Don't care	0	0	1	1
Guess	0	1	0	0
Stop reading[3]	0	0	1	0
Don't know	1	0	0	1

This result may not be very convincing, since the question was asked in general terms rather than in connection with reading of a text. It does demonstrate, though, that the poor readers, to some extent, know that they fail to comprehend and that they know of at least one way to remedy their failure. This does not mean, however, that they take the consequences of this knowledge in a *real* reading situation.

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[3] Meaning if the book is too difficult there is no point in continuing to read.

Concluding remarks

The students in my study, poor and good readers alike, seem to be well aware of the importance of reading, for everyday life as well as for education and for their future. Most of the good readers have had early experiences with print and could read at school entry, which is not the case for the majority of the poor readers. The students' conceptions of reading as a mental activity differ according to performance level and age. Most of the younger students and one third of the poor grade 8 readers describe the technical skills involved in reading, whereas all good readers in grade 8 describe reading as understanding, as an automatic process or as a combination of decoding and understanding. This result is congruous with other research in the area, apart from the fact that a fair number of the poor readers in grade 8 seem to have a rather mature view of the reading process, if they are given a chance to reflect on it. When they are asked about something specific, like what they do when they fail to understand, they can mention a strategy, even if they have claimed before that they "just read" when the question is of a more general nature. In this respect, the major differences between the poor and the good readers among the 15-year olds seem to be in the accessibility of metacognitive knowledge and, especially, in metacognitive control of their reading. Even if they do use various strategies, this use seems to be somewhat arbitrary. Another important difference between the two groups lies in the poor readers' relative inability to verbally express the metacognitive knowledge that they possess, which may also hinder them in making necessary connections between *what* they know and *how* to actually use their knowledge about reading strategies. So, for instance, many poor readers in grade 8 notice that they sometimes make reading errors, and they know that something has to be done about it. However, they do not have an arsenal of methods to choose from, they have one only - usually, the first strategy that comes to their mind is either to ask someone for help, or to reread the passage. The good readers, on the other hand, mention several. They ask someone for help or reread passages as often as the poor readers, but *first* they try some cognitive strategy, like using a dictionary, making inferences from context or from earlier experiences. This is what they say they do. To what extent they actually use the strategies remains to be studied further.

Among the younger students in grade 5 the differences between poor and good readers are very small as regards awareness of strategy use, strategies in general, as well as comprehension strategies. "Well, I've learned to read, haven't I? So, I understand." or "You notice all right, it's obvious" are answers from grade 5 students to the question how they know that they have understood a text. In this case, it seems that they are not helped by the questions being more specified. However, in practice some differences in strategy use do exist, e.g., as regards variations in reading speed for different texts (chapter 10) and also in the way they use textual and nontextual clues in answering questions about a text (chapter 8).

Chapter 7

STUDENTS' CONCEPTIONS OF DIFFERENCES BETWEEN TEXTS

In the more general part of the interview one of the questions dealt with how the students read texts of their own choice as compared to how they read school-texts or homework. During the interview session the students were also asked to read three short texts; after each text they answered some questions concerning reading strategies, content and text structure. In addition they were asked to suggest genre and to describe differences between the three texts. Some technical details about the texts are to be found in table 4. In this chapter, for reasons of reference in the discussion, student examples will be assigned numbers, and after each example there will be an indication of the student's grade and subgroup, e.g., 8G (grade 8 good reader).

A brief description of the texts

Text 1 contains facts about Denmark, its landscape and natural resources, and includes some details like names of islands (App 3 A). It can be defined as *descriptive exposition* (in Meyer's (1975, 1984) terms description). In the following this text is sometimes referred to as "facts" or "instructional texts".

Text 2 has a more narrative approach than text 1, although it deals with facts about the universe, the rotation of the globe, why we have night and day etc. (App 3 B). Some details and figures are mentioned. To illuminate the phenomena described in the text the author has used examples from a child's everyday life, e.g., a toy, a merry-go-round, and a train. This text can be defined as *explanatory exposition* (in Meyer's (1975, 1984) terms causation with streaks of comparison and description) with some narrative features, and will sometimes be referred to as "faction" (Jansen, 1991).

Text 3 is a *folk-tale*, or a traditional story (App 3 C), about a wealthy landowner, a widower who decides to marry a poor farmer's daughter. The girl turns him down, and the landowner tries various cunning ways to lure her into granting his wish. His manipulations do not work, however, instead the girl plays a trick on him. Through intentional misunderstandings an old mare is dressed up as a bride and brought into the hall where the bridegroom, all his wedding guests and the vicar are waiting for the bride. In comes the filly in full wedding dress, crown and all, and the squire gets the shock of his life. He is forever cured from thoughts of marriage. This text is defined as *narration*, and will sometimes be referred to as "fiction" or "story".

A more detailed description of the texts is found in chapter 4. In the following I will discuss the answers given by students to some questions concerning text structure and differences in writing style, as well as their accounts of how they deal with different kinds of texts when reading. Each example is assigned a number in serial order, the same number always referring to the same example.

Facts or fiction?

The first observation to make when analysing the answers is that the good readers in general gave more extensive and thoughtful answers to most questions, here as well as in other parts of the interview. This, of course, is fully in line with observations made in other investigations where children have been interviewed. In my study there is also a notable difference between the age groups, which is quite natural, taking into consideration that the older students are more experienced readers. It goes without saying, that common difficulties in using interviews for collecting data are evident in this study as well, a matter which was discussed in chapter 3.

The full picture of the interviews shows that all students in my study to some extent are aware of certain differences between texts they read at school and texts they themselves choose to read, i.e., if they read at all. Generally, they have no problems in identifying texts as facts or fiction. Primary school students know that instructional texts often are hierarchical and contain details which are to be remembered, while fictional texts are built around events or descriptions of people, places, situations (Beach & Appleman, 1984, Lundberg, 1984). There are even indications that children as young as 4-5 years intuitively use a "story-grammar" when telling a story (Meadows, 1988). Primary school students also know that it is more engaging to read a text which they have chosen out of their own free will than a text which they are required to read in order to learn something, whether interesting to them or not.

> Ex 1. ... if you read a book about the 19th century, a story, then you would get more involved in it than you do with the History book. There are more facts in the school books, they are not exactly stories. (8G)

Most of the students equal reading of content area texts with learning, and often they seem to experience learning - and consequently reading text books - as something forced upon them by school (chapter 5).

The students' awareness that different texts require different reading approaches is not easily brought into the light. In as much as it exists, it refers to either the amount of mental effort put into the reading process or the outcome of the process, i.e., how much of the text content that is remembered afterwards (ex 2-4). This relative unawareness, on the other hand, could be a result of the rather unusual situation that the students are placed in here - hardly ever does anyone ask them to describe how they go about reading or learning. Thus, they either can not verbalise it, or they have never given it a thought.

Ex 2. *(About reading instructional texts)* It feels more like you are forced to get it into your head, and that is not how it feels when I read an ordinary book. Then it's sort of automatic, it's faster. When you are doing homework you have to ... if it's something you have to know, you must take in every sentence, almost. A book is more fluent ... (8G)

Ex 3. I read a book with more interest and want to know how it ends. (5G)

Ex 4. */About text 1, an instructional text/.* It's about things you have to learn. The others you don't have to learn anything from ... This many important facts you can't remember. (8P)

Ex 5. In a subject matter text there is more to remember, you have to know how things are. When you read ordinary books ... you remember that anyway ... you sort of know that anyway ... (5G)

Most commonly, and quite naturally, the students read fiction in their spare time, and they prefer to read "funny" or "thrilling" books, e.g., detective stories or adventure, unless they only read comics, which seems to be most common among the poor readers (Persson, 1992). There are, however, a few students who choose to read content material even in their spare time, either travelogues, documentaries (including historical novels), or magazines and journals dealing with their hobby or special interest. The latter mostly applies to poor readers (ex 6-9), which might be explained by the fact that such texts are often short and have a structure similar to school texts - the type of text these students are most familiar with, taking into account that they seldom read anything out of their own free will. The first mentioned type of subject oriented books, namely travel stories and documentaries, probably calls for a more advanced reading technique and is chosen almost exclusively by good readers.

Ex 6. *(What texts are more difficult to read?)* That differs, it depends on how entertaining the text is. If it's very boring I prefer to read about facts. (5P)

Ex 7. I rather want texts where you learn a lot, like technical books. If I want to rest from that I read a fairy tale. (5P)

Ex 8. *(What kind of texts do you prefer to read?)* Facts, because they are short. (5P)

Ex 9. I learn better when I read on my own, and what I enjoy. So, if I read about motors I learn that much easier as against something else in school, because I'm interested in it, because it's fun. *(Do you read any other texts, apart from those dealing with your special interests?)* Hardly ever. It's only if we have to, at school. *(So you read mostly facts?)* Well, I have not read that much yet about motors. For a while I was hooked on card games. Then I was reading such books, so I know some card games now. (8P)

Also those students who rarely read as pastime have some idea about what differentiates fiction from facts, even if they say that they read them in much the same way (ex 10, 13). Exciting books naturally generate more engagement in the reading process. That seems clear even to the poor readers, just as it is clear that one is expected to learn something from an instructional text.

Ex 10. *(How do you read a book that you have chosen yourself?)* In the same way as a school text. *(Do you think you remember it better?)* Yes, I do. *(Why is that, you think?)* Maybe the texts in the school books are more complicated than in ordinary books. (8P)

Ex 11. */About text 1/* It's a text you learn from, not a story but a "learning text". (5P)

Ex 12. *(How do you read a text of your own choice?)* I just read ... *(Do you remember that better, you think?)* If it's thrilling or something like that. *(Why is it, you think, that you remember it better?)* I suppose I find it more fun to read. It's faster, becomes more concentrated. You really go in for it. (8P)

Ex 13. I suppose it's about the same ... *(Was there any difference between the three texts?)* No. *(Did they feel the same to read?)* No, not exactly ... *(What was the difference?)* This was a story. The others were more for real. *(And there was no other difference?)* No. (8P)

To define the task

Regardless of age and performance level the students clearly express that they perceive factual and instructional texts as something you must remember or learn. Thus, they define the task on the basis of which kind of text they are to read: reading of a school text to them means "cramming" in as many details as possible in order to pour it all out at a later date, i.e., if you are lucky enough to remember it at all. Reading of fiction involves no such requirements.

Ex 14. Facts are more difficult, then one really has to make an effort. (5P)

Ex 15. Factual texts are more difficult. Such things you have to remember, you must strain yourself. (8G)

Ex 16. */About text 3/* For one thing it's not a factual text, and then, maybe because of that, it's written in a different way. Stories don't have to be written in such a way that it will be easy to recollect every single detail. The important thing is that it's well integrated, so that it becomes a story. (8G)

Ex 17. */About text 3/* I didn't think about that I had to remember anything special. It's not so difficult when you read a coherent story. That's different from reading one of those "belching" routine texts. (8G)

Ex 18. Stories are always simple to read, you easily get the gist of them. In this text */text 1/* you have to reflect a little. You must remember what you have read about Denmark before and so combine it. Then it's easier to remember. (8G)

Ex 4. *|About text 1|* It's about things you have to learn. The others you don't have to learn anything from. This many important facts you can't remember. (8P)

The surface oriented approach to reading inherent in some of these examples (esp. 14, 15, 4) may easily lead to a conception of "facts" as being something broad and unspecified: everything that has to be learned and remembered is placed in the category "facts". School reading is conceived of as a memorising task, exclusively, and thus as something totally distinct from reading a story or non-factual text. In contrast, story reading is *not* defined as a learning or memory task; a story or piece of fiction can be read for its own sake - mostly, you do not have to read it in school or as homework (cf. the comparisons in ex 16, 17, 18). And, much to your surprise you remember it afterwards without further ado! (ex. 5). For the students it is not necessarily the reading itself that causes problems, it is the learning part, the "rubbing in" of details (ex 15, 17, 4). There are those who, in order to deal with this problem, use very conscious strategies to enhance memorising, e.g., ex 18, a student who claims that she activates her prior knowledge of the topic when reading a text like the one about Denmark.

School reading in a sense is attributed a side objective, which is missing when you read a narrative chosen out of interest. It seems as if "reading to learn" is something quite different from "reading", which by the students is defined as "reading for pleasure". School reading (*instrumental reading*) includes the objective of learning or "rubbing in facts", which disturbs the reading process and often takes the upper hand. Furthermore, it is often difficult to decide what facts or details that are more important to remember than others. Any questions can come up in tests or exams, which in turn means that it is necessary to read everything with the same degree of attention and concentration. This is a case of macro-level horizontalisation (Wenestam, 1978, 1980) where the reader does not make any distinction between essential, superordinated items and less important, supportive details. Thus, examples become as important as the principle which the examples are supposed to illuminate. When you read texts chosen out of interest, the reading has no other purpose but the reading itself, or perhaps the purpose is to dream yourself away from here and now and to experience something together with the writer (*experiential reading*). Everyone can comprehend and interpret the text in his own way without worrying about whether his interpretation is right or wrong. It may even be so that real "experiential reading" transfers the reader into a state of trance or "flow" (Csikszentmihalyi, 1985, 1990). This is a state of deep concentration where time and space seem to disappear and a person is incapable of registering any stimuli that are irrelevant to the activity in which he or she is involved. This state of mind is actually described by one of the skilled readers in grade 8 in the following way:

Ex 19. Sometimes I listen to music while I'm reading. It has happened that ... maybe they play three pieces of music and then they announce my favourite, and I think How nice! I'll listen to that. Then all of a sudden I wake up from the book and that music is long gone. I'm almost inside the book. Sometimes I can see them, like when I read Enid Blyton-books.. they are really good. Sometimes I can see them, what they are doing when it's very exciting ... There's nothing quite as nice as really getting into a book. (8G)

It seems quite obvious that narratives require a "contract of reading" different from that of expository texts. According to the students, narratives do not demand so much mental activity, because "one remembers them anyhow" without effort (ex 2-5, 14-18). Reading a narrative is more "fluent", a story has a continuous flow which makes it easy to follow, and there is no need to get caught in details, while school-book texts are characterised by their exposition of single, unconnected details. This means there are more separate items to memorise in an expository text and it is usually not possible to get any cues from other parts of the text to fill in gaps in comprehension or recall (ex 20-25).

Ex 20. */About text 3/* That is the easiest one. It's a story, and then you understand more. Those things about the earth and about Denmark you don't understand so well. Because that is a story which continues, but ... the other one ... 'Denmark is a peninsula ...' and then you don't remember anything else, and that's the way it goes on ... (5G)

Ex 21. */About text 1/* Well, it was a lot at one time actually ... because, first there was something about agriculture, and then they talked about industry, and fishing, and then about ferries and bridges. It was too much, really, I think. (8G)

Ex 22. */About text 3/* This is more like a tale. It's not so crammed with facts, but it's about people and their feelings and actions. At least I think that is more fun to read about than just facts lined up one after the other. It's not itemwise but more connected, more hanging together like a story. (8G)

Ex 23. */About text 3/* Simple. *(What makes it different from the others?)* The content is different, it's more like a story, a tale. *(So what makes stories different from other kinds of texts?)* Well, it's like a story, the others are not. It's much easier to read. (8P)

Ex 24. */About text 1/* Quite difficult. *(Why?)* It's so complicated, one thing after another. *(Compared to the others?)* More difficult. There are so many facts on top of each other. (8P)

Ex 25. */About text 1/* Well, this one is divided into paragraphs, but in a different way, each item on its own, like. (8P)

To read expository text thus becomes a question of itemising; the text is divided into smaller units (ex 21, 24), of which you can recall more or less. It demands a high degree of intellectual effort (ex 4, 5, 14, 15, 24, 30, 32). To read a narrative, especially one you have chosen yourself, is less arduous, it is more or less automatic and the effect is given: you remember better in spite of the lesser mental cost (ex 2, 5, 17, 23). These are the most common conceptions among the students in my study. One group of students diverting from the others in this respect, however, are the really poor readers, who, although aware of their reading problems as well as text differences, nevertheless tend to spend the same amount of hard work in reading, regardless of the type of text or task assigned to them.

What kind of texts are difficult?

Many students during the interview exhibited a one-dimensional view of "difficulty" when they were asked to evaluate the level of difficulty of the texts they had read during the interview session. In their evaluations they used either *external* criteria, like "big and clear print", "short paragraphs" (ex 25, 26, 39, 41), or *internal* criteria, like the content, e.g. story, funny text, facts (ex 20, 22-24). In their statements they frequently equalled "story" with "easy text" and "facts" with "difficult text". An informational text often has a higher degree of density, as regards both visual features and content, so this kind of text, in their view, must be more difficult. However, a few of the younger unskilled readers said that expository texts like text 1 are easier to read because they are "shorter", i.e., they contain less words to read (ex 8), but most of those who judged difficulty from external criteria said that texts like text 3 are easier to read because they usually have a more spacious lay-out, and shorter paragraphs (ex 29, 39, 41). Not many students make a clear distinction between the text's appearance or "surface structure" on one hand, and linguistic features or the author's writing style on the other, although some examples can be found in the material (ex 27, 28, 35). As could be expected, making this distinction is more common among mature readers with a purposeful approach to their reading. It requires an ability to evaluate the text from several angles at the same time: what it looks like ("the print was big"), how difficult it is to read ("there were no difficult words"), genre ("nothing but piled up facts") and the author's writing style ("this was more expressive").

Ex 26. */About text 3/* It was a good text and simple, because the print was big and there were no difficult words. (5G)

Ex 27. */About text 2/* I thought it was easy to understand, because there were good explanations. There was nothing just taken for granted, but the writer explained why it was like that. The last one */text 1/* was more piled up, nothing but facts. This text */text 2/* was easier to read, more expressive, written in a different way. (8G)

Ex 28. */About text 1/* It was quite easy to read but difficult to remember if you only read it once. So many facts. (8G)

Ex 29. */About text 3/* Easier because they spoke to each other. It's like you understand better yourself, you sort of get more involved. (8P)

Ex 30. */About text 1/* It was not difficult, but rather laborious. It's not the kind of text I like, this one with a lot of facts. (8P)

The reader meets the text

It has already been mentioned that many students in this study did not seem aware that there is more than one way to read a text, they made no conscious choice of strategy or speed, despite the fact that they knew that there are certain distinctions between instructional texts and fiction. In our conversation during the interview, however, some of them seemed to realise that such distinctions may produce differences in reading behaviour. In other words, it is possible that they make distinctions without being aware of it. Having realised this the students tried to describe the differences between reading to learn and reading for pleasure, most commonly - especially in grade 5 - in terms of overt behaviour. So, for instance, they could describe how they go about reading a book for pleasure in the following manner: "One is lying down comfortably", "Then I just sit or lie down in peace", "Then I read silently", "Then I don't read more than once". Reading to learn could be described like this: "Read several times", "I usually take a ruler or put my finger under the line", "I read aloud".

Generally, "I just read" is a common description of the manner in which they read texts of their own choice. It is particularly common among the slow readers, while good readers rather try to explain in what way it feels different to read a text for pleasure as compared to reading a text in order to learn something from it.

Ex 31. For instance for an exam, you read that through as quickly as possible, but a good book, you want it to last, you take it a little easier. But at the same time you read faster just because it's so good and yet you don't want it to finish quickly. (8G)

Ex 32. You relax more */when reading a book/*. It's quicker because you don't have to concentrate on learning every word perfectly ... You are not forced to read, you read when you feel like it. (5G)

Ex 33. *(Do you read texts that you have chosen yourself in the same way as instructional texts?)* Since I'm interested in most things at school, I believe I do. Maybe I'm more interested in what I read at school, so I think I read that more carefully. Other books you can borrow them over and over again. (8G)

Ex 34. *(How do you go about reading a text of your own choice?)* Then I sort of get more involved in it. (5G)

Ex 12. */Part of the answer/* I suppose I find it more fun to read */books I have chosen/*. It's faster, becomes more concentrated. You really go in for it. (8P)

One sophisticated reader in grade 8, who also describes thoroughly how he goes about doing homework, gives a detailed account of his leisure reading, *what* he reads and *how*. A kind of reading behaviour usually observed in less advanced readers (the use of "silent speech") is, in fact, described by this student, but he uses it in a very conscious and purposeful way; he is aware of using it and he has an explicit reason for using it.

Ex 35. I don't normally read so much, but when I do read it's usually books with special milieus and ancient language, old-fashioned Swedish. *(You mean books by Tolkien and such?)* No, those I've read in the modern versions. I mean old heroic poems, Icelandic sagas and such things. Some of them are quite difficult to comprehend, but it's all right most of the time. I must have a dictionary at hand when I read, though. *(Yes, there would be some old expressions that are out of use nowadays. Not even advanced readers would know them. But you think you understand? What about homework and subject matter in general?)* Those are too simple. But the others, after I've read one verse or chapter I think it through, reflect on it. After I finished reading I go through the whole story once more and imagine things based on it. I make little pictures in my head. If there's something not quite right I go back to the book, and then it's usually something I've misunderstood, so I look it up in a dictionary. *(How do you go about the reading itself?)* Well, I read quite slowly, and often I move my lips, too. I find it hard to get into the text unless I pronounce the words. *(You pronounce them silently, so that it's a kind of inner speech?)* Well, you can't see that my lips are moving, but it feels like it. But actually, to do like some, just slide your eyes across the page, I think you miss something that way. You have to try and listen to the book at the same time, listen to the language. Sometimes that's very important. Maybe it's a depiction of the landscape you're missing ... I can get stuck on certain sentences that I like, mostly the style in which they are written ... *(What do you remember best in a story?)* Things I remember best are things in passing, like. Some weeks may elapse, and then all of a sudden it pops up in my head and it takes some time before I remember where it comes from. But then suddenly I know. Then it takes time before I get it out of my mind again, even if I try, but it sticks in my mind. Often it's a dialogue or a strange quotation. *(Don't you get curious about where it comes from, why you remember it?)* Yes, I have to check, otherwise my mind won't be at rest. It's quite strange, I think. (8G)

Reading different kinds of texts

As mentioned before, during the interview the students were to read three different texts silently. They were asked to recall the texts immediately and then to answer questions about the content. The instructions were as follows:

> Read this text and tell me afterwards what it was about. You will also be asked to answer some questions about the content of each text. While you are reading I will measure your reading speed with this stopwatch.

This was the only cue as to defining the task. In a few cases the students spontaneously skimmed the text before starting to read and stated "This is facts", or "This is about Earth, it should be more interesting than the one about Denmark", or "It seems to be a folk-tale". To what extent this skimming procedure affected their reading is hard to judge, but it seems quite clear that they changed reading speed according to the text, although in most cases without being aware of doing so (chapter 6).

Most students have no problems in labelling text 3 a "folk-tale" and the other two texts "facts". Poor and young readers, though, fail to detect other differences than those pertaining to content or general genre, i.e., they seem less sensitive than the older and better readers to specific characteristics of different texts.

Ex 36. One is about the earth and the other about a horse. (8P)

Ex 37. It's about people. The others were just facts. (5P)

Ex 38. The first one */text 3/* was more fantasy, this one */text 2/* was more realistic. *(Did you find any differences in the way they were written?)* That one was more like a story, this was more like facts. (5G)

Ex 39. */Text 3/* was divided into paragraphs so that it was not just a big hunk of text to read ... */Text 1/* is also divided into paragraphs but in a different way, each item on its own, sort of. (8P)

Ex 40. The others */texts 1 and 2/* are more about the world. This is about a landowner who lives ... who has money and wants to get married. (8P)

Older and more confident readers make attempts to define the differences between the texts, although it seems difficult for them to disregard the external characteristics of the texts:

Ex 41. Facts in text 1 ... and then text 2, that was more to learn how things function, and this was a folk-tale or a story. *(Was there any difference in style, I mean the way this one was written?)* Style? Well, it was sort of divided into small paragraphs. (8G)

Ex 42. The one before */text 1/* was more sort of piled up, just mentioning of facts. In this */text 2/* there was a little more to read, more expressive, written in a different manner. *(And text 3?)* That is more a folk-tale, it's not so crammed with facts. It's about people and how they feel and behave and such. At least I think that's more fun to read than just facts, one line after the other. (8G)

It seems particularly difficult to distinguish between texts 1 and 2, since both contain facts. In as much as the younger readers try to describe some other differences besides content, they tended to either go by external characteristics, such as length of words and paragraphs or text density, or make a general evaluation of the text, e.g., "it was fun to read" or "it was more interesting".

Ex 43. The text before this */text 1/* had more facts, this text */text 2/* was more fun. (5G)

Ex 44. *(What was the difference between texts 1 and 2?)* No difference, only the last one was a bit longer. (5G)

Ex 45. *(What was the difference between texts 1 and 2?)* The same kind of text, but they are about two different things. (5P)

Ex 46. Well, the one about Denmark was facts, this one is ... well I don't know what you call it, but it's about the earth and the sun, so it's not the same thing, I suppose. *(Is there any difference in style?)* Well ...

about Denmark, they told you everything that happened and about farming. In this, they tell you about how the sun is moving. (8P)

A statement about one text or the other being "easier" or "more difficult" naturally causes a wish from the interviewer to get an explanation. The explanations given in this case are, for instance, that they have read about the topic in school recently, or that they are more interested in a certain content. But some note that in the text about Denmark there are many facts to memorise and this makes it more difficult to read. This remark is particularly common in grade 5. Four poor readers in grade 8 (and one good reader) are of the opinion that text 2 is more difficult than text 1, the reason being that the content of text 2 is less familiar and more complex (ex 47, 48). Maybe an additional reason could be that text 1 is a type of text well known to these students - it is typically found in instructional books and poor readers have little experience of reading outside of the school context. Furthermore, due to their slow reading, in school they rarely get as far as the extra - and often more interesting - texts that the good readers get to read as a reward after finishing their assignments.

Ex 47. */Text 1/* is better than text 2. *(Why?)* Yes, because things are more sort of hanging together in it than in the other one, I think. *(Why is this?)* Well, because it's easier when you have dealt with something before, like this thing about Denmark. Then it's easier to remember than the other. (8P)

Ex 48. The one about Denmark was easiest. *(Why is that?)* This one */text 2/* was more complicated. I think that was why I didn't quite grasp it. *(So you knew more about Denmark before?)* Yes. (8P)

The more advanced readers in grade 8 generally demonstrate that they have noticed differences in text structure and not only in content:

Ex 49. This one */text 2/* seems more well written at least. It catches your interest better. (*Why is that, you think?*) He uses some metaphors. (8G)

Ex 50. */Text 2/* was wasier than that one about Denmark. Of course, I have read about it before. He describes things in a good way. But I thought that it must be written for kids younger than us. I thought it was for middle school or something like that. *(Has the writer used any special approach to fulfil his intentions?)* He repeats it, he really does. And that he involves the reader all the time, because he says: "and you do like this or like that". And then how you calculate your own age if someone asks you. You sort of get into the text more than if he were to write "if someone asks someone", it's more personal this way. I thought that was good. (8G)

Ex 42. The one before */text 1/* was more sort of lined up, just mentioning of facts. In this */text 2/* there was a little more to read, more expressive, written in a different manner. *(And text 3?)* That is more a folk-tale, it's not so crammed with facts. It's about people and how they feel and behave and such. At least I think that's more fun to read than just facts, one line after the other. (8G)

If nearly all the students have a rather *surface oriented* relationship to texts 1 and 2 after having defined the task as "memorising", it would only be fair to say the opposite as regards text 3, i.e., the story is generally read with a *deep approach*. The purpose of reading in this case is defined as understanding and engaging in the content rather than just memorising it (ex 2, 5, 16, 22). This goes for poor as well as good readers; also the poor readers' reading of narrative seems to be more automatic than their reading of exposition, a fact that might account for the expression "I just read it" when the students are asked how they read text 3. As reading the story feels less effort consuming the students - with a few exceptions, however - are less aware of these efforts than when they are struggling with the facts about Denmark in text 1. A common statement among the students is "text 3 was easier to read because it was about people". According to some of them, what constitutes prose is exactly that it tells about people, their feelings and actions, and "that people talk to each other", as opposed to expositories, which deal with the "hard" reality, "they describe how things work".

Authors have certain intentions

An author's intentions are not always clear; sometimes he/she goes beyond the actual genre in which the text is written. Some expository texts are not just mentioning of facts or explanations of phenomena but may have some narrative elements as well, like text 2 in this study. In the same way, narrative texts often contain factual elements and may also be intended to convey some moral or ethical message, they can be rich in symbols and ambiguities. Small children often fail to discover double meanings and hidden messages, and the same seems to be true for poor readers. Because of their frail confidence in their reading ability they do not trust their judgement in making alternative interpretations, so they choose a surface approach to the text - what is written is what is meant. Their reading is "horizontal", i.e., figure and ground, principle and example, are levelled out, and their knowledge of text structure or story-grammar does not help them to organise the text for comprehension and retention.

After reading each text the students were asked, i.a., what they thought about the author's intentions with the text (*Q 40. What do you think the author wanted to convey in this text? Q 41 Has he used any special means to say this?*). These questions were very difficult to answer even for the best readers. In the case of text 1 it was especially difficult: what intentions could there possibly be with such a text other than the exposition of facts about Denmark, a common enough objective for school-book texts? Most of the answers for text 1 are of the same type: "He wants to tell us about Denmark", "He wants to explain how things are in Denmark", but there are some exceptions:

Ex 51. *(Q 40)* It gives a picture of how things are, a little of the history and how their industry is. That there are many islands, that it's ... what it looks like. A little of everything. *(Q 41)* He has organised it in different paragraphs. (5G)

Ex 52. *(Q 40)* Maybe he was born when they exported things to the USA, or when they had problems in selling their crop to the USA. So he wants everyone to know how it was yesterday and today. *(Q 41)* He compares nowadays and earlier times. (8G)

Ex 53. *(Q 40)* There is nothing in the text ... Well yes, that you should not touch the mountain, because then you'll get white. Chalk or whatever it was. (8P)

Ex 54. *(Q 40)* He wants to tell us how nice it is in Denmark. That we should go there and have a look. *(Q 41)* He writes down words about what things look like. (8P)

Ex 53 is a demonstration of the "horizontalisation" mentioned earlier - a micro-level example, used by the author in order to explain what the white cliffs of Denmark are made from - is singled out by the student as one of the most important items, whereas the other students have made use of the macro-level structure of the text. This can be traced in ex 51 and 54 in particular.

Overall, many of the poor readers have obvious problems in discovering the author's intentions, apart from what was given by the genre label they had assigned to the text - facts or fiction. The skilled readers, however, often try to pinpoint the deeper meaning of the text, either by summarising the content (using macro-structure) or by going beyond the literal wordings of the text. This can be seen in the answers to Q 40 as regards text 2. Some students clearly have a holistic view of the message, whereas others have made note of some detail or have a very general idea about the content. The students stated the following as the author's possible intentions for text:

A. To *explain* the diurnal rhythm (ex 55).
B. To *describe* how the earth and the sun function (ex 56).
C. To *mention* certain facts about the earth (ex 57).
D. To *tell/teach* us about the earth and the sun (ex 58).
E. No special intention (ex 59).
F. Don't know.

Ex 55. A description of the earth and the sun, how we get night and day. (8G)

Ex 56. How the earth and the sun function together. (5P)

Ex 57. He wants to say that the earth goes around like this. How many days there are in a year. (8P)

Ex 58. He wants us to learn. (8G)

Ex 59. I don't know... actually, I knew most of it before. No, I don't think it was anything special. (5G)

Half of the younger poor readers and one third of the older poor readers were unable to answer, but very few (five in all) found no intention. Some of the good readers in grade 8 gave quite unspecific answers, like "He wants to explain", "He wants to teach us more about how things are, how they work". This might be because they found it unnecessary to mention what goes without saying, i.e., the topic, *what* is to be learned or explained, was known to both the student and the interviewer. They may also have given their ideas about the author's intentions in their answers to Q 38 (suggesting a heading for the text).

The question about author intention is particularly interesting as regards text 3. Fairy-tales, fables, or traditional stories usually have a moral point or some symbolic meaning. In this case the point is that money cannot buy everything.

An extra point could be traced in the misunderstandings which occur when the actors fail in communication and take certain things for granted. The students also have other suggestions as to the underlying intentions of the author, like "He wanted to say that old men should not trace young girls". The following "hidden meanings" have been mentioned by the students:

A. Money can't buy everything (ex 60).
B. Old and young people should not marry each other (ex 61, 62).
C. Avoid misunderstanding and do not take things for granted (ex 63, 64).
D. People have certain traits that make them behave in a certain way (ex 65, 66).
E. No special point, the author just wants to tell a story or give some facts (ex 67).
F. Don't know.

Ex 60. Only because you are rich you can't get everything. Maybe he wasn't nice, anyway, and that wouldn't be good, would it. (5P)

Ex 61. Not to propose to girls who are not so old, perhaps. (5G)

Ex 62. What he wanted to say? Isn't it just for entertainment? *(It could be, but I think there is some point in it.)* Maybe to get old people not to run after girls who are too young. (8G)

Ex 63. You have to be more careful *(Careful about what?)* Well, that you have to tell ... to explain more. (8P)

Ex 64. That perhaps you should sort of ... well, he knew that she didn't want to marry him. He should have tried to find out if she really agreed. (5G)

Ex 65. I think it's that people can be kind of shrewd. (5G)

Ex 66. That you shouldn't be so stingy. (8G)

Ex 67. There was a rich landowner who fell in love with a poor servant-girl who worked for him in his fields. How it really was. *(You mean in the old days?)* Yes, there are some facts in it, too, although it's a tale. (5P)

Even here, some of the poor readers exhibit a horizontal conception of the text - its only intention is to entertain the reader and it contains no distinct elements. Two of the good grade 8 readers also give that kind of answer, but at least one of them had detected the rich-poor dimension and associates the story with something he has seen on TV:

Ex 68. I think he wanted to describe how things were in those days when some people were poor. It's like what we have seen in that TV-series about the saw-mill owners. (8G)

Some hesitation can also be found in another good reader in grade 8, whose answer however belongs to category B, although he did receive some help (or rather, he was prompted to come up with another answer):

Ex 62. What he wanted to say? Isn't it just for entertainment? *(It could be, but I think there is some point in it.)* Maybe to get old people not to run after girls who are too young. (8G)

All in all, category E- and F-answers make out two thirds of the answers from the two groups of poor readers. These students could recall large portions of the text immediately after reading it, but they did not seem to perceive any message in the story. They comprehended the text literally and superficially, each part of the text separately, but those elements which are not so clearly expressed, and which contribute to a deeper understanding of the text, remained unnoticed.

About one third of all students have regarded the rich-poor dimension as an important feature and thus attribute the story the intention that "money can't buy everything" (cat A). Only five students in all contend that the young-old dimension is the most important one (cat B). One student includes both dimensions in his answer:

Ex 69. A rich old landowner cannot marry a poor young daughter of a farmer. (8G)

The C-category includes answers expressing the message as being "don't take things for granted if you want to avoid mishaps". The misunderstanding that most students refer to is that the squire did not make sure if the girl had accepted to marry him, before he arranged the wedding. He took for granted that she could not resist his wealthiness, and so things went wrong. The girl, however, did resist his offer, and it is usually difficult to marry someone against that person's will. Another misunderstanding is less obvious. The squire had not given his servant clear enough instructions when he sent him to fetch the girl. They took for granted that they were talking about the same thing, when the squire said "she" about the girl and the servant was referring to the mare. Seemingly, only one student has noticed this discrepancy, although he has some problems in expressing it:

Ex 63. You have to be more careful *(Careful about what?)* Well, that you have to tell ... to explain more. (8P)

Yet, several other students, when answering the questions about the content, show that they did notice that this misunderstanding was a problem, but apparently they need some cue to bring it onto the surface of their minds. In the text, reference to the faulty communication is rather subtle - it has to be read into the story between the lines. The rich-poor motif has a more pregnant position in the text; it is more explicit and it is repeated several times.

One of the unskilled grade 5 readers gives a response which is clearly based on a misunderstanding:

Ex 70. Well, that it's not for the farm-girl to decide who she should marry, but it's HE who decides who she is to marry. That's what I think he wants to say. (5P)

Metaphors, ambiguities and double meanings

Using metaphors in order to explain complex phenomena is an effective technique, especially if the metaphor has some connection with the reader's world of experiences. Studies made by, e.g., Wenestam (1978) have shown that such metaphors or comparisons, which constitute distinct elements of a text, are often easier to remember than the point of the text. In text 2 the author has used some analogies to explain the cycle of the earth; a coin, a toy top, a merry-go-round, and a train. Further, the text is written in a simple language without many long or uncommon words. The only words that caused some confusion were the toy top, the name of the merry-go-round ("whirl-wind") and the word "axis"[1], which some of the 5th-graders could not remember having seen in this context before.

Normal primary school students have not yet worked with text analysis or practised genre descriptions. To most of them texts are either "facts", i.e., instructional or schoolbook texts, or "stories", i.e., chunks of words describing a certain course of events[2]. A few poor readers in both age groups may have noticed the narrative elements in text 2 and thus characterise it as "a story about the earth and the sun", whereas others emphasise the content and characterise the text as "facts" or "taken out of a school-book". Many say they think this text is more fun or more interesting, because "it's more general knowledge ... more important to know something about", than the text about Denmark. The special metaphorical features of text 2 seem to have passed unnoticed by most poor readers and several of the good readers as well, although it is possible that they simply do not know how to express why they think there is something special with this text (Ex 27, 42, 43, 72). However, some of the good readers in grade 8 explicitly mention the author's use of metaphors (Ex 49, 71), analogies, comparisons (75, 76, 77). The following categories of answers to question 41 can be found:

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[1] The Swedish word "axel" is a homonym, which also means "shoulder".

[2] It may be that students who stated "It's a story" had a vague idea about what constitutes a story. To them "a story" may be just a limited piece of text with a beginning and an end. In their answers they tended to use the two words "berätta" (tell) and "beskriva" (describe) synonymously. These words are sometimes interchangeable in everyday Swedish.

A. The student understands the analogy between an example and the principle (ex 71, 75, 76).
B. The student mentions an example without connecting it to the principle (ex 72, 77, 78).
C. The student mentions the special character of the text (ex 50).
D. The student summarises the content of the text (ex 73).
E. Unspecific answers (ex 74).
F. Don't know.

Ex 71. He uses metaphors. For instance, this thing that turns, both around its own axis, and around in a big circle, which could be compared to the earth. *(And the example with the train that you mentioned before, what was that supposed to illustrate?)* That we don't notice the movements of the earth. (8G)

Ex 72. Not in the ordinary dull way, in a more pleasant way. For instance, he tells about when you are in a train and you don't notice which of the two trains is moving. He asks you, you have to think yourself. You feel more for it, like. He asks questions, so you become more interested. It's much more exciting, then you think it's extra fun. (5P)

Ex 50. He describes things in a good way ... But I thought it must be written for kids younger than us. I thought it was for the middle grades or something *(Has the writer used any special approach to fulfil his intentions?)* He repeats it, he really does. And that he involves the reader all the time, because he says: "and you do like this or like that". And then how you calculate your own age if someone asks you. You sort of get into the text more than if he were to write "if someone asks someone", it's more personal this way. I thought that was good. (8G)

Ex 73. He has said that there is an axis which the earth circles around, and then that the sun rises in the east and sets in the west, and that certain days, or sometimes at night the sun is on the other side of the earth, and that they have day at that time and we have night. (5P)

Ex 74. He has described how it really is. (5G)

It is possible, even likely, that some of the students whose answers are in category B have understood the metaphors, but they have not demonstrated this in their answers. The clearest expressions of this understanding of the text's metaphorical structure are given by those good readers whose answers are placed in category A. There are five, one of which is in grade 5.

Ex 75. Sometimes he has used analogies, made comparisons, then you probably remember better. (*Can you give some example?)* Well, that...no wonder people thought in the past that it was the sun that

> moved, because sometimes it's very difficult to see, when objects move. When you are in a train, for instance, or in a car, sometimes you may think it's the landscape that moves. You know it's not, but it may feel that way. I Don't think I remember anything more ... Oh yes, riding on the whirl-wind, or a merry-go-round, the way it feels ... only it's much faster of course. Yes, and then there was this toy top, too. (8G)

In answering this question the students take on different perspectives, which makes it difficult to organise the answers in a hierarchy. Six students have given comments about the author's writing style, three of which (good readers in grade 8) are placed in category C, because they do not mention anything about the metaphors. Yet, these are high quality answers, in that they emphasise the narrative features of the text. This is also done in some A- and B-category answers, e.g.,

Ex 76. He has written it down like a story. *(What makes it like a story?)* It's about the same thing all the time, but he doesn't just write that the sun ... or the earth, that it circles around its own axis. It's more cohesive. *(He has used a certain technique ...)* Yes, comparisons. Like, that you may think that it's the other train that's moving. And when you ride on a merry-go-round, it's almost the same as with the earth, it goes around in a circle and at the same time it spins around. (8G)

Ex 77. He takes examples, like that one about the train ... It's not just crammed, or listed bla, bla, bla ... It doesn't get boring that way. (5G)

This last student is the only one in grade 5 who has commented on the text structure. What strikes the students who have noticed something special with this text is that the author's style makes the text more interesting and easy to follow: "it's not just crammed with facts"; "he asks you, you have to think yourself, you feel more for it, like"; "he involves the reader all the time"; "it's more cohesive"; "it becomes more exciting"; and "it's repeated, so that one remembers". Most students think that this text is easy to read, although it deals with a complicated topic. But there are some differences of opinion. One of the good readers in grade 8 comments that "it seems to be written for the middle grades", while a poor reader in grade 5 reacts to the interviewer's explanation of the metaphor technique ("It's so as to make it easier for younger students to understand how the earth functions") in the following manner: "Oh, I thought it was written for older kids".

The most commonly mentioned metaphor is "that thing with the train", which most of the category A- and B-answers include:

Ex 78. He mentioned, for instance, if you are in a train, so perhaps the other train starts and then you think that your own train is moving.

The frequency of mentioning metaphors is eight times for "the train", six times for "the toy top", and five times for "the merry-go-round", in 15 answers, which means that some students have mentioned two or three metaphors. Forty-five per cent of the students could not answer the question about author intentions for text 2, most of them were poor readers.

Text 3 has a rather typical story structure. Its special features, the hidden message and the double-meaning of certain words, are embedded in the content and thus have to be detected between the lines. Several students were not able to answer the question about how the author has tried to convey his message, because they failed to see the hidden message. However, some examples should be mentioned:

Ex 79. *(Q 40)* Money can't buy everything. *(Q 41)* He has written about a rich landowner. (5G)

Ex 80. *(Q 40)* Well ... not all poor girls want to marry rich old men. SHE didn't want to. *(Q 41)* He has made it like a tale, where a rich gentleman wants a poor girl, but she doesn't want him. She knows that he's stingy and old. (5G)

Ex 81. *(Q 40)* Money can't buy everything. *(Q 41)* He was fooled, sort of. (8G)

Ex 82. *(Q 40)* You have to be careful about misunderstandings. *(Q 41)* You shouldn't arrange a wedding unless the other one knows about it or wants to get married. (8G)

Ex 83. *(Q 40)* The rich cannot always get what they want. *(Q 41)* He tried to propose and promised her money and arranged the wedding and tried to be smart. But it turned out, that it was that farm-girl who was smarter than him. (8P)

Ex 84. *(Q 40)* You can't force anyone to do something she doesn't want to do. *(Q 41)* She fooled him. (5G)

Ex 85. *(Q 40)* A rich old landowner can't marry a young daughter of a farmer. *(Q 41)* He writes that she says no thanks when he proposes to her. (8G)

Ex 86. *(Q 40)* He wanted to get married, so he fell in love with a girl in the fields. *(Q 41)* He writes about the squire and that he wanted to marry her, but she didn't want to. (8P)

Most of the answers to Q 41 logically follow the students' answers to Q 40, although some of them are rather "flat", i.e., they do not add anything to the information given in Q 40 (ex 79, 80, 82, 85, 86). In ex 81, 83, and 84 the students carry their case one step further by concluding that the squire was outsmarted by the girl, which could be seen as one of the hidden messages of the story. The difficulties with the double-meaning of certain words and phrases become obvious during the interview, when the students are asked questions about the content of the text. The younger students and the poor readers of both age groups often fail to see through the surface of the text, they interpret it literally and sometimes also misunderstand key words. This is dealt with further in chapter 8.

However, even if 40 per cent of the students (all but two were poor readers) failed to find the essence of the story without extra clues, many of them were able to trace this essence later on, while giving answers to the content based questions (chapter 8). The reason for this could be that they feel more familiar with questions the answers to which they have a good chance to find in the text, than with questions where they have to make inferences and draw conclusions and thus formulate answers that partly go beyond the text itself, as is the case with questions 40 and 41.

Reading comprehension problems - are they word recognition problems, decoding problems or general comprehension problems?

Some of the poor readers describe their problems when reading a text, regardless of what kind of text, in a rather illustrative and vivid manner. They usually have no problems in understanding the questions posed to them, and they answer questions willingly, although they know that their answers are not always correct: "I don't remember, but I'd say it is ...., or "I don't know, but I think ...". However, the mental strain involved in the decoding process is so demanding that they easily lose interest in the content, which they would otherwise have the capacity to comprehend. To many of these students reading fiction is no pleasure, rather it is something they have to force themselves through fulfy aware that they get nothing much out of it. Being accustomed to not understanding the main ideas they also have difficulties in noticing exceptional features in the text, e.g. anomalies or unexpected turns in a story. If by any chance they do notice, they tend to think that they have made a mistake, because "it doesn't make sense". However, they are not likely to do anything about their confusion. Grade 5 students could possibly ask an adult - teacher or parent - at hand, but rarely do; grade 8 students skip the passage and go on reading, or they accept their first interpretation, even if they have a feeling that it is not the likely one (See also chapters 6 and 8).

In text 3 there is the word "mare", an old and in contemporary Swedish rarely used word, unknown to several students, but many of them have inferred from the context that it is a horse, or at least some kind of animal. If you do not understand that word you will risk misunderstanding the whole point of the story. Ex 87 exhibits a student, who earlier on during the interview has claimed to understand most of what he reads and that he is sure about it, because "it just gets into my brain". Contrary to most poor readers he has noticed that he did not understand the word "mare".

Ex 87. */After reading text 3/ (Where there any words you didn't understand?)* Yes, mare. *(It's an old word for a female horse.)* Oh, I didn't grasp that ... *(How did you read this text?)* I just went along, I didn't lose track ... *(But what did you do when you got to the word mare?)* Well, I thought it was the bride, that it was a sort of nickname. (5P)

This student otherwise has no difficulties in distinguishing between facts and fiction, but both types of text require great mental efforts, although he thinks that stories normally are easier to read and easier to remember. As a result of his mistake with the word "mare" he misunderstands the end of the story (see further chapter 8).

Another grade 5 student, a rather slow reader, stated that out of the three texts he had most trouble with text 3, the folk-tale, which he did not understand much of, although he claimed that he understood all of it (meaning that he understood every single word). About the story he said:

Ex 88. It was so messy. First it was about one thing all the time, but then it all went haywire. (5P)

He was the only one who failed to recall any of the content, apart from the opening of the story, probably due to the fact that this was the last text in the session and at that point he was so tired that he could not mobilise enough mental energy for the task. He stated that he had read that particular text with higher speed than the other texts. In fact, his speed for that text (215 words/min) was between the other two (197 w/m for text 1 and 280 w/m for text 2). On the other hand, this student had very clear ideas about his own reading, he gave a detailed account of his problems and how he once learned to read (ex 89; see further chapter 6).

Ex 89. If it's a book about two people, which I don't find interesting, then I just read it through like normally. But if it's something interesting, then I read very slowly, like this ... and I try very hard to understand properly what it's about. Because if I were to read a book which is about 2 cm thick, that would take me 2-3 months to read. And otherwise, if I read the normal way, then it can take me one month. But the other kids in my class, they read the same thing in about a week. And that is because I have so much trouble with my reading. (5P)

In most cases of poor reading comprehension it seems not to be their general comprehension ability which causes the students' reading problems - they would understand the story if it was read aloud to them. Neither is a limited reading vocabulary enough to explain the problems, although there is some evidence to this end. Whether due to deficiencies in automatisation of their decoding process or to a misguided reading approach, the comprehension problems clearly delimit their reading experiences and hinder further development of their reading abilities. So far, they have never experienced reading as a pleasurable activity.

Concluding remarks

It can be concluded that the grade 5 and grade 8 students in this study seem to have no difficulties in discriminating between expository texts and narration, although they characterise the text types in different ways, according to age and performance level. Good readers in grade 8 recognise different styles of writing or distinct features in language or text structure, whilst younger and less skilled readers just make comments on differences in content and external characteristics. In as much as a *deep approach* to reading of a text does exist among the students it mostly pertains to *narratives*, like text 3 in this study. *Reading in school* is the same as *reading to learn* and, consequently, the task is to *memorise*, but a narrative can be read *for pleasure* and does not have to be remembered. As the students put it "you will remember that anyhow, without trying".

Most students are also aware that different texts require different "contracts of reading", but it seems easier for the good readers to describe the differences between the contracts. The amount of mental effort, or degree of attention, involved in the reading process is often the same regardless of text among poor readers, but the good readers spend more energy on texts that they have to memorise. This is what the students themselves express. The degree of *metacognitive awareness* in the different groups of students differ in the sense that older and more advanced readers exhibit a more diversified and deeper *metacognitive knowledge* regarding text structure as well as their own ability to interpret the text, than the younger and less skilled readers. They also show some *metacognitive* or *monitoring skills* in making decisions about reading speed and strategies ("I read this text more carefully, because I knew you were going to ask questions") as well as control of comprehension. Not least the older and more skilful readers make this very clear in describing their homework and exam study procedures (chapter 5). Furthermore, they make more precise accounts of text characteristics and give more reflective answers to the interview questions.

The importance of motivation is also apparent in this context. A text that you yourself have chosen out of interest is not linked to any specific task demands, there are no restrictions as to time and place, etc. Under such conditions, even a poor reader may experience some kind of "flow" in the reading process. In the best case, this could be transferred to all reading of narrative texts, and there are indications that this is exactly what happens: "it becomes more concentrated" (ex 12), "you get more involved" (ex 29), "I didn't lose track" (ex 87). It is also worth noting, that the experienced readability of a text does not always coincide with a readability index for that same text. This is especially interesting as regards expository texts in a school situation, where motivation for study plays an important role. For instance, Järmark (1979) showed that a linguistically complex text was not regarded as difficult by college students provided that they thought the content was interesting and worthwhile; on the other hand, an objectively simple-to-read text was found difficult, if it was of no consequence or just uninteresting. Baldwin, Peleg-Bruckner & McClintock (1985) also found in their study of 7th and 8th grade skilled readers that both topic interest and prior knowledge added to reading comprehension.

although the two were uncorrelated in their study[3].

It is, however, reasonable to assume that there is an optimal "level of deficiency" (Dalby et al, 1992) beyond which motivation plays a minor role in the reading behaviour of the individual. Even if the degree of reading deficiency for each individual was not established in my study, there is reason to believe that a few of the subjects were beyond this optimal level of deficiency, that is, they had some general comprehension problems. However, it should be kept in mind that all tasks given to the students were verbal (including the memory tests and the verbal intelligence tests described later in chapter 10).

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[3] They explained this last somewhat surprising result by saying that children in school are forced to read and learn things that they are not interested in. The authors believed that they would find a correlation between prior knowledge and topic interest among adults.

Chapter 8

STUDENTS' CONCEPTIONS OF CONTENT ISSUES

In this chapter we will discuss the students' responses to questions about the contents of the three texts. For each text I will describe the outcome space (see chapter 3), give some typical examples of the responses and try to demonstrate the most important differences between good and poor readers in terms of perceiving and interpreting a text. As we shall see the outcome space is not quite the same for the three texts, which may indicate that different text structures actually generate different ways of reading.

Questions about the content of text 1

Text 1 (see chapter 4 and App 3 A) can be characterised as an instructional text and as such it contains several facts. It was therefore inevitable that some of the questions concerning the content were dealing with these facts. Despite the possibility to make out some answers directly from the text it was in most cases necessary to derive information from different parts of the text to form an answer. Some questions were of standard type, but others were breaking the "school contract" in that they demanded a certain amount of inference making. The tacit rules of this "school contract" generally presume that the answers have to refer to the text on which the questions are based. Knowing about these rules, although usually unaware of them, the students commented "but this is not in the text" when they presented answers based on information from other sources, for instance, their own experience.

The variation in outcome space is characterised by the degree to which the readers have made inferences or integrated different text elements in their answers, and whether they have regarded one or several aspects in the text. To some extent the outcome resembles what Biggs and Collis (1982) describe in their SOLO taxonomy (see chapter 4), where the most significant differences are to be found between multi-structural and relational answers. Although using a slightly different terminology the most important dividing line in my material is also between readers with an ability to draw conclusions from the text, relate different parts of the text to each other and to their prior knowledge and experience, on one hand, and those who merely mention one or more facts from the text, on the other. In addition, there are those who misunderstand the text, either because they misread certain words, or omit important modifiers, or do not know the meaning of key concepts.

In the following a few of the questions and the students' responses will be accounted for in detail, while others will be just summarised. However, the comparisons and conclusions at the end of this chapter are based on analyses of the entire material presented here.

Q 70. What does the country of Denmark look like? What kind of landscape?

The first part of this question was rather vague and general and often it had to be clarified. The idea was that the students should not just think about what Denmark looks like "on the map" but also try to describe the landscape the way it appears in the text. The answers turned out to be either *relational*, where the students discussed cause and effect issues, made inferences or comparisons (category A), or mere mentioning of facts, *assemblage* (category B). Within these categories there were both multi-dimensional answers (A1 and B1) and uni-dimensional answers (A2 and B2). A few students gave a faulty or at best neutral, non-committal *description* of Denmark; their answers have been placed in category C. Category D contains the Don't know-answers.

Q 70. Categories

A. A relational answer
A1. Multi-dimensional

> There are many, many islands. There are not so many mountains but small hills and a rather flat country. So, it's not like in Sweden, where there is for instance Kebnekaise, over 2000 m. The highest peak I think was 187 m or something. *(Perhaps 200 m, no more.)* No, it doesn't say, but ... (5G)
>
> It's flat, no mountains. They don't have any primitive rock like we have in Sweden, instead they have nothing but soil, no solid rock. *(Green hills.)* Yes, it's nice, I believe. *(You have never been to Denmark?)* Yes, but I haven't seen much of the landscape, I have just seen large, grey, dreary buildings. *(In Copenhagen, you mean?)* Yes. (8G)

A2. Uni-dimensional

> There are no mountains, flat country. It's worthwhile to have agriculture, because the ground is chalk instead of primitive rock. (8G)

B. An assemblage answer
B1. Multi-dimensional

> There's a lot ... one tenth is forest. There are small islands, and then bigger islands. There's quite a lot of grazing land and fields. (8G)

B2. Uni-dimensional

> Well, many islands ... (8P)

C. An answer that gives a faulty or non-committal description of Denmark

> Quite various, perhaps ... (5G)
>
> It's mountainous and no forest. (5P)

D. Don't know

The main part of the answers, about 55 per cent, are in category B, i.e., answers where the student have assembled facts without further comments. There are 13 category A-answers (out of 53) and they occur in all subgroups, although mostly among good readers in grade 8 and least among grade 5 poor readers. The main difference between A- and B-category answers is *conceptual*, i.e., in the A-category answers the students followed a line of reasoning, while in the B-category answers the students just mentioned facts from the text. The within-category difference is a *topical* one; the A1- and B1-answers brought up different features, e.g., the shape of Denmark as well as the landscape; the A2- and B2-answers concentrated on one feature, e.g., "There are forests with roe and deer".

The incorrect answers of category C, given mostly by poor readers, were probably based on misunderstandings of the text, but three of the good readers in grade 5 gave quite neutral answers, like "Lowland", or "It's flat". The poor readers may have registered keywords like "mountain" and "forest" but they missed out part of the information, the part which disclosed whether there was much or little of these phenomena. Therefore they could give answers like: "It's mountainous and no forest", or "Rocky". Other answers gave no clues at all about the landscape:

> Narrow streets. (8P)
>
> They grow a lot of stuff. They have industries. (5P)
>
> It's sort of oblong ... *(What about the landscape? How does it look?)* Nice. *(In what way?)* ... Don't know. (5P)

Sometimes they pointed out a specific detail in the text, e.g., that only one tenth of the area is forested, or that there is a kind of dusty limestone "so when you touch it your fingers get white, it's almost like chalk". One student only (a skilled reader in grade 5) gave no real answer to this question despite several attempts from the interviewer to help her. She seemed to have confused the country of Denmark with its capital Copenhagen, although she was otherwise by her teacher regarded as a generally good student:

> ... *(Have you been to Denmark?)* Yes ... *(Then you know what it looks like?)* But I was little then. There's a lot of water. *(Yes, maybe you were only in Copenhagen?)* Yes, but we went to Denmark first, and after that we went to Copenhagen. (5G)

Q 71. What do people work with in Denmark?

The last two thirds of the text have to do with how people earn their living in Denmark. One paragraph is about livestock, another about farm produce, and other industrial branches are also mentioned. The last paragraph deals with the country's fishing industry (Appendix 1).

When responding to a question like this the students most often mentioned single facts, the type of response commonly requested in exams or tests. A few of the students in my study gave some comments to their answers, which were attempts at analysing or inference making, instead of just mentioning different trades. Such answers have been placed in category A. Category B contains answers which include several sources of income (B1) or only one source (B2) without further comments. In category C the answers are not totally wrong, but they mention some unusual trade not mentioned in the text, or they were generally vague.

Q 71. Categories

A. Analytical and/or inferential answers

> It varies ... *(But what is most common?)* I don't know, but according to the text it was like this ... *(Yes, according to the text ...?)* Well, some are working with agriculture ... I know quite a few Danes, but they don't work with what is mentioned in the text. (5G)

B. Mentioning answers
B1. Multi-component

> Fishing - there are many boats, and bridges and that. And then it's farming ... and some small industries. (5P)

B2. Single-component

> Butter, cheese and such ... farming (8P)

C. Beside-the-point answers

> Boats, I think, at least those they are telling you about *(Not only boats, is it? What else do they do?)* Work ... *(With what?)* Don't know. (5P)

All students answered this question, so there is no Don't know-category. The A-category answers are few (eight), evenly distributed between the four subgroups. As mentioned earlier, this probably has to do with the way the question was phrased - it called for mentioning of facts. Category B-answers are most common regardless of age and performance level; they constitute 80 per cent of all responses, a somewhat higher proportion in grade 8 than in grade 5. Most students have mentioned more than one source of income, e.g., agriculture, fishing, industry. Three students, all poor readers, have given beside-the-point answers. Their responses only marginally referred to some trade. They had got a clue from the text, e.g., "boats", or "mountain", but it was not enough for them to formulate a correct answer.

In categorising these responses I have not considered the level of specification of the information given, i. e., whether the students mentioned wider categories, like agriculture, fishing, industry, or more narrow categories, like food industry, dairy farming. This was because some responses contained more than one level of specification:

- Fishing and farms and animals, food.
- Textile factories. A lot of liquor. Agriculture.
- Fishing, metal industry.

These students mentioned both a general category of trade and a specific example of this trade without making distinctions between the two levels. Both levels are also present in the text, although in a hierarchical order:

> The re-structuring of Danish agriculture has resulted in an expansion of the food industry: This is apparent in cities and townships. There you find large dairy factories, that take care of the milk from the farms and make butter and cheese from it. Pigs and other livestock are sent to the modern slaughter-houses, where the animals are slaughtered on a production line.

Some students have taken note of such details in the text:

> They work in slaughter-houses, the production line is moving the whole time or how to put it. So, they work a lot with meat. (8P) (Cat A)

Other students seem to have misunderstood this part of the text:

> Mostly industry. They mine coal and iron. They seem to work very hard. (5P)

Q 72. What kind of natural resources does Denmark have?

This is a rather difficult question for two reasons; first, many of the students probably did not quite know the meaning of the concept "natural resources", second, it is not directly mentioned in the text. So, the reader had to make an inference. It appears in the text that the Danish soil is very fertile and that Denmark is surrounded by water. Mentioned are further chalk, and calcite and clay from which cement is manufactured:

> Chalk and limestone make the soil very fertile ... There is an abundance of calcite and clay, and from these raw materials cement is made in large cement factories.

Some natural resources not existing on Danish ground are also mentioned in the text:

> Danish industry nowadays employs more people than farming does. Just like in Sweden many people move from rural areas into towns. It

> is not only the food factories there that give people work. Despite the fact that Denmark has no oil, coal, waterfalls, or minerals, there exists an important industry of various sorts.

A sentence like the last one above is a pitfall to unskilled readers in that it lists phenomena which are missing in Denmark, instead of those existing. An unskilled reader is easily led to believe that Denmark has a large industry based on oil, coal, water power and minerals.

Answers of mere mentioning are elicited by this question as well, but traces of reflection can be found in some answers. Such answers have been placed in category A. Responses which only include natural resources will be found in category B (B1 for mentioning several items, B2 for mentioning one item). Some students have indirectly answered the subsequent question, in that they mentioned a source of income which depends upon a certain natural resource. These answers will be found in category C, divided into two: in C1-answers the students reflected on the lack of resources in the country, in C2-answers they just mentioned some source of income. Category D-answers are faulty or irrelevant, and Don't know-answers were placed in category E.

Q 72. Categories

A. Analytical and/or inferential answers

> Their agriculture is very profitable, since they have this limestone instead of primitive rock. (8G)

B. Mentioning answers
B 1. Multi-component

> Cultivated land ... and then this limestone rock. (5G)

B 2. Single-component

> I suppose it's that they have a lot of fertile soil. (8P)

C. Answers lacking distinction between source of income and natural resources
C 1. Reflective

> Meat and wheat, rye and such things. And then there is ... I don't believe there is so much forest. *(No, that's right.)* I suppose, they don't have so many natural resources in Denmark. (5P)

C 2. Mentioning

> Don't know, they grow things. (8P)

D. Erroneous or irrelevant answers

> Waterpower, minerals ... don't know anything else. (5P)

E. Don't know

Category A-answers were non-existent among the poor readers. In categories B and C no special trend could be recorded. Among the unskilled readers there were several Don't know-answers (10 out of 18 in grade 8, but only 2 out of 10 in grade 5), and some incorrect or irrelevant answers (category D). Some of these erroneous answers pertain to the fact that the students had misunderstood the passage in the text where the lacking resources are mentioned:

> They have minerals, I suppose...well, it's quite a lot..... natural resources? *(Yes ...)* Agriculture and fishing. (5P) (Cat C)
>
> Waterpower, minerals...don't know anything else. (5P) (Cat D)
> I suppose it's coal ... natural gas (8P) (Cat D)

The first among these answers was placed in category C2 because the student delivered an acceptable answer after thinking a while and without actual help from the interviewer. Some answers were very vague and uncertain:

> I remember there was one place where it said ... I don't remember exactly what it said, if they have coal or if they don't have coal ... (5G) (Cat E)
>
> That thing with the pastures ... *(But what kind of natural resources do they have in Denmark?)* Cows and such ... (8P) (Cat D)

Other students gave examples of products manufactured in Denmark:

> Meat and wheat, rye and such things. And then there is ... I don't believe there is so much forest. *(No, that's right.)* I suppose, they don't have so many natural resources in Denmark. (5P) (Cat C1)
>
> There is ... isn't it that thing with the ploughs? *(Well yes, but I mean raw material from which you can make things?)* Well, that I suppose is iron and that sort of things. (8P) (Cat D)

This last response is an over-generalisation, the student mentioned a product not included in the text but nevertheless an example of a production area which is included, i.e., agricultural machines. One student talked about the landscape as an asset, which in itself is not wrong, although it is not discussed much in this text. Even if tourism is, undoubtedly, a most important component of the Danish economy, there is too little said outwardly in this answer for it to be placed in a category other than D:

> Well, you can sit on the beaches and look around; the landscape is quite beautiful, so you can go out and have a look at that. And what else can one do? One can look at rocks, for instance the kind of rock I told you about before. (5P) (Cat D)

Obviously, this student based his answer more on his prior knowledge of the topic than on the text itself or even a combination of the two.

The following question, *Q 73. How do they utilise their natural resources?* was obviously quite difficult, as half of the students did not produce an acceptable answer. In several cases they could not recall what was in the text but they seemed to have some previous knowledge to make use of:

> They make beer! (8G)
>
> What I know best is that they make nice clothes, quality label clothes. Then they have the fishing ... (8P)

In as much as the students knew the meaning of the words "natural resources" it is quite apparent that they connected them with things like iron ore, water power, oil, coal etc. Most students had gathered from the text that raw material like these are non-existent in the Danish soil, hence they mentioned phenomena which could be regarded as "natural resources" although at the same time giving them the benefit of a doubt:

> Natural resources? Well, that clay, I think ...
>
> Well, natural resources ... I think there's lots of chalk, but that is no natural resource, is it?
>
> The water, of course, since it's a peninsula and then four large islands, so it's water. But I suppose that's not a real natural resource, that is probably open to debate.

The large amount of Don't know-answers among the poor readers in grade 8 could be an indication of such lack of confidence, but it may also be added that the students were not accustomed to questions the answers to which can not be found directly in the text.

Q 74. What kind of industries do they have in Denmark?

To answer this question one is required to gather information from different parts of the text, although most of it is in the last part. Like Q 71 this is a school-like question and it calls for mentioning of facts. Most responses were of that character, but there were also some reasoning answers.

One of the analytical multi-component answers was delivered by a poor reader in grade 5 who had earlier talked with the interviewer about his problems in identifying the most important things in a text, meaning that he often memorised irrelevant details. When he was to answer the teacher's questions at school, his mates often told him he was "tedious", because he had to recapitulate everything in detail. The Don't know-answers were often followed by some comment:

> Don't know ... I don't remember it now, although I have read it.
>
> Don't remember. I've got such a poor memory!
>
> It won't work. I hate it! It's so difficult.

Such answers express a negative attitude to activities of this kind, i.e., answering questions from a text about something that is not interesting to the students; it is an activity often linked with a sense of failure. Other types of comments also appeared:

> Fishing industry. *(There are others as well ... do you remember?)* No, I don't. Perhaps I read it through too quickly. *(Yes, perhaps. The text said something about different kinds of industry ...)* Cement-factories. (8P)

Some students clearly had misunderstood the text, as demonstrated by these two unskilled grade 5-readers:

> It's in here ... it's hard to remember. I did read it ... It was something about power ... *(Well, they don't have any water power, there are not many waterfalls in Denmark.)* No, but ... It's just dead stop.
>
> There are mostly iron- and steel-factories. And they make spare parts for cars ... no, it wasn't cars, it was for something else ... machines, it was. So, they make those.

Q 75. Why is it that agriculture is so important in Denmark?

This type of question requires some inference making, as the answer is not clearly expressed in the text. The "why" in the question induces explanatory statements, thus making the structural differences between the response categories topical rather than conceptual. The most advanced answer to this question would be that the Danish economy is very much dependent on agricultural trade, the fertile soil being Denmark's foremost natural resource. This type of answer was given by one good reader in grade 8, whereas almost half of all good readers stated that people earn their living through agriculture. A noticeable difference between the age-groups was that the younger students gave "excluding" answers: "They hardly have anything else", "They don't have much forest and such things", and the older students' answers had an explanatory character: "It's worthwhile, because their soil is so fertile".

Q 76. Why did the farmers stop growing wheat at the end of the 19th century?

Unlike the answer to Q 75, the answer to this question could be found more or less directly in the text, which was also demonstrated in the students' responses. This, however, did not preclude some students' use of their own wordings and inference making. At the same time, fifty per cent of the unskilled readers in grade 8 could not answer this question; in each of the other groups three or four students either gave no answer or said that they did not remember.

Some students were apt at picking up a line of reasoning and thus arrived at an answer, although they recalled only fragments of the text, e.g.:

> They did that because ... unless I mix it up with something else, fishing or something. I think it was West-Germany that started ... the USA, too, I think, started to grow wheat. And I suppose they did it cheaper. *(That's right. How was that possible?)* That didn't stick either, would you believe that ... (8G)

There were also students who made their own explanations as to why the Danish farmers changed their agricultural production:

> Wheat doesn't do well down there. Nowadays other plants are dominating.

Q 77. What did the farmers do instead?

Being a rather typical school-question, the answers contained mostly mentioning of facts, more or less directly taken from the text. Some of the students had not grasped much of this text passage; they either made guesses or were probing to arrive at an answer, which, however reasonable, had no support in the text. Some of these students could, with a little guidance, arrive at a "better" answer:

> I think they went more for iron and coal and that ... *(Is that what farmers usually do?)* No ... *(So what do you think they did?)* Well, that was ... they planted more fodder for the animals and such.
>
> I suppose they moved into town, didn't they. *(Some did, but others, who wanted to stay in the countryside, what did they do?)* They bought animals and grew animal fodder.
>
> It was fishing and tourist ... they made tourist and seaside resorts. *(That is now, but in the 19th century, what did they do then?)* Fishing ... no I don't know ... industry ... *(Well yes, but they started to grow fodder-plants and ...)* Oh yes, they had more animals and such.

Typically, the categorisation was based on the student's first spontaneous answer, also in these cases. The dialogues above exemplify the instructional model of piloting (the teacher - or in this case the interviewer - navigates the student to an answer by giving him simple, directed questions), a strategy chosen unconsciously most of the time, nevertheless not too uncommon in teaching (Lundgren, 1977, 1981). Not always does this strategy lead to the answer intended by the benevolent questioner, which the following sequence demonstrates:

> No, I don't remember that, actually. *(If you think of the conditions in Denmark now ...)* Well, I suppose they went over to industry ... *(Maybe not foremost. For what do they use the ground?)* What the farmers use the ground for? *(Yes?)* I'm not sure. What did they do? At least they didn't build houses ... No I don't remember at all. *(They*

> *started with cattle instead.)* Yes, that's it, they put them out on grazing land. (5P)

Q 78. In what way has the fishing trade changed on the west coast of Denmark in later years?

The entire last paragraph in the text is about the fishing trade on the North Sea coast of Denmark (App 3 A).

In this case category A contains answers where the students have conducted a line of reasoning and made inferences from the text. Category B-answers are more or less direct reproductions of the text without further comments. The answers in category C are only marginally related to the text; even if the facts are correct they are gathered from a source other than the text. This would (or should) in a test situation at school render the student high scores, but in the present context the task was to demonstrate understanding of the text. A high quality answer in this case, then, was to be derived from the text, even if it going beyond it was permitted. Consequently, answers which are good per se but have no reference to the text were placed in category C, although their quality is higher than those placed in category B, which are directly related to the text. Don't know-answers were placed in category D.

Q 78. Categories

A. Relational and/or inferential answers

> Some time ago they had small boats and fishing villages. Now these have mostly been turned into tourist villages. They have procured bigger boats. I suppose they want more fish. The small boats can only get, let's say, one 25th of what the big boats can bring up. (5P)
>
> They had rather small boats before. Now they have bigger boats, that sail across the North Sea and up north. And they take out much more fish, since their equipment is more modern. (8G)

B. Reproductional answers

> Well, the Danes didn't have any harbours, or big harbours, I mean the fishing people or the fishermen, so they moved from their fishing villages and into bigger harbours, so that they could use bigger boats, because the others had to drag their boats up on the beach. Had to move to the seaports, so that they could carry on deep-sea fishing. (8P)

C. Answers marginally related to the text

> The fishing trade ... it's that they have started to drill for oil on the oil-rigs, and then when they drill there, it's sandy and that ... that's where the fish have their spawning-ground. That's where they are drilling. So the fish move north, I think it was, and then the fishing got worse, more expensive. (8G)

D. Don't know

The category A-answers (seven in number) can be found in all groups, which is also true about the other categories. Most answers were placed in categories B (nineteen) and C (fifteen). There were twelve D-category answers, five of which are found among the skilled readers in grade 5, and four among the unskilled readers in grade 8.

The inference most commonly made by the students stated that the Danish fishermen wanted to harvest more fish and that this was the reason why they had procured larger boats, modern equipment and better harbours.

In the B-category answers as a rule only part of the text was referred to, a part that might not directly tell in what way the fishing trade has changed.

> The fishing villages have become holiday resorts instead. The fishermen are fishing and then they go straight to Great Britain to sell to the English. (8G)
>
> Changed fishing villages, so they became holiday resorts instead, so that people could come there and fish instead. (5G)

The answers in category C often refer to information which the students have received via TV or other means of communication, having little relevance to this particular text, even if it may be relevant to the issue. In this context were mentioned the new fishing zones, the oil-rigs (which were non-existent at the time when the text was written), the growing tourist trade, the North Sea seals and water pollution:

> In the sense that oil and other dangerous stuff have come out into the sea. And then - it may not have to do with it - but from Iceland, they are hunting seals there, so the seals have moved south, and they take quite a lot of fish. But I don't think that's the only reason. (5P)
>
> I don't remember ... it has become worse, I think. They didn't say, actually ... *(Yes, there was something about it in the text.)* What I was thinking of they didn't say anything about, that was about the white zone. They divided it between them.. Some got ... I think it was Russia ... 70 per cent, and Denmark got 30 per cent. They said that on the TV news. There were some fishermen saying: No, now it's about time to stop, because the best fishing waters are there. Then I don't remember what they said in the text. (5G)
>
> A lot of pollution that has changed it. (8G)
>
> In what way it has changed? I think it has been more computerised, like all other fishing trade. *(What does that mean?)* There will be less fish, because they take too much as it is. That's in the Social Studies book. *(It also means that they use bigger boats.)* But now they have radar and echo-sounder, because one boat costs as much as ... well, it can't have been as much as an industrial plant, or was it? There was something about it amounting to a lot of money. It's as costly as setting up an ordinary industry. So all the fish go away. (8G)

One of the skilled readers in grade 8 could not arrive at an answer but she was probing and tried very actively to recall the content of the text, a method she otherwise often used with success, according to her own statement. She did get some clues, although this time they lead her astray:

> ... Well, I'm interested in fishing ... *(It was in the last paragraph.)* I know there was about fishing in the last paragraph, because I remember where about it was, but there were many lines. That was the hardest part ... No, mainly on the west coast? *(Not only there, but I think it's mainly on the west coast of Jutland that people have lived on fishing.)* I know there was something about other countries. Was that West Germany? It's bound to be, it must be right some time. I don't know where I got that from. The English! *(Yes, there was something about the English.)* Yes, what about them? They started to fish, too, did they? No, it was something else...both were fishing ... I don't know. (8G)

This answer was placed in category D, because the student did not really arrive at any acceptable answer.

Conclusions as regards text 1

All the students know that this is a kind of text typically found in a school book. The topic as such is also well known to them, as is the type of questions usually belonging to such a text. This knowledge about the "school contract" can be detrimental to a poor reader, as his earlier experiences have formed his *metaknowledge* about his own capacity for learning. This metaknowledge tells him that he can not answer such questions, that his memory is poor, and that he often misses out essential parts of the text. This is particularly true about the poor readers in grade 8, who have a long history of school failure.

The grade 5 poor readers are more confident about this text; the topic is rather familiar to them - it is part of the grade 5 curriculum for Geography. However, in most of the grade 8 classes I visited they had recently studied the Nordic countries, including Denmark, during Social Studies lessons, and some of them had also been to Denmark on a study tour. But their negative learning experiences seem to be stronger than their first-hand experiences of reality, which means that they can not take advantage of this real-world experience in answering questions. It is a matter of being able to make use of this experience *when appropriate*, i.e., to check it against the new information in the text and evaluate its relevance to the text and the question (Alvermann, Smith & Readence, 1985). This is one instance where their "compartmentalisation" behaviour (earlier mentioned in chapter 5) becomes rather obvious, i.e., their school world and their real world are kept apart from each other. When they answer the questions they keep strictly to the school-book rules and rarely go beyond the information given in the text, which is a strategy much more common among the good readers who are confident enough to rely on other experiences, to make inferences and references, draw conclusions and pick up cues from the interviewer. Such strategies are most apparent among the good readers in grade 8, who also give the most analytical and reasoning answers (36 per cent of all answers in category A, as against 27 per cent for good readers in grade 5, and 18 per cent for poor readers in either age groups).

The poor readers' inability to evaluate and assess their own functions results in a strong reliance on the text, even if what they remember of it is sometimes misunderstood, illogical or unlucky. That is why they may give answers which they would not even come to think of in a different context. That is why a student may state that Denmark is a country of mountains and forests, although he has been to Denmark several times - he even has relatives there - and consequently knows that this statement is not true. But this was what he gathered from the text, so it was the answer to the school-question "What does Denmark look like?, as far as he could gather from the text. When reading the passage he had omitted the small but important word "no". He had a different answer to the same question after he had been asked about his own experiences of Denmark:

> (*Have you ever been to Denmark?*) Yes, many times, my father's family lives there. (*So, what does it look like there?*) Well, it's very green, quite flat and there are not many trees.

Questions about the content of text 2

This text deals with phenomena that everyone has experience of or some knowledge about (App 3 B). It is therefore not surprising that the answers were impregnated by such knowledge or experience, regardless of what the text reads. The instructions given to the students before the reading of this text also included the information that after they had finished reading the text there would be a discussion about the content.

The responses to the content questions of text 2 demonstrate very clearly the differences in verbal fluency and factual knowledge between younger and older students, rather than just differences in comprehension. It was difficult to make categorisations where these differences were considered and at the same time avoid to interpret into the answers something that was not intended by the student.

The outcome space here is characterised by the difference between explanatory answers and mentioning - or in some cases descriptive - answers, apart from the answers that are based on misconceptions of some kind. In addition, for this text there is yet another difference, that between knowledge-based, text-based, and experience-based answers. Knowledge-based answers usually integrate text information with prior knowledge and experience; text-based answers may be descriptive or mere mentioning of facts from the text, sometimes misinterpreted; experience-based answers are derived from the reader's sensory perception and sometimes misconstrued ideas about the phenomena under discussion. So, this is a case where the students' prior experience overrides the information in the text, probably because here we have to do with a phenomenon that is well known to everyone, that can be observed nearly every day. Therefore everyone has some idea or conception about it, which it takes more than one single reading experience to change.

Q 80. Why does it seem as if the sun rises in the morning and sets in the evening?

Categorisation of the answers to Q 80 has been based on the degree of precision in the explanations presented by the students, as well as the factual knowledge they have gathered from the text. Category A contains answers which are attempts to explain the night-and-day phenomenon and has been divided in two sub-categories depending upon explicability. The answers of category B are less precise, even if they are factual: "The earth rotates", "The earth spins around". Category C-answers are even more general: they just indicate *that* the earth moves but not *how* it moves, and category D-answers suggest that it is the *sun* that moves. Category E contains answers which do not place elsewhere and category F the Don't know-answers.

Q 80. Categories

A. The answer is an attempt to explain the diurnal rhythm
A1. An explicit explanation

> The earth spins and the sun shines on one spot all the time, and when we get to the place where the sun is not, it gets dark night for us. On the way in, it's half sunshine, half darkness, and that's when it's dawn. (5P)

A2. An implicit explanation

> Because the earth circles, and then it gets dark on one side. (8P)

B. The answer is a description of the earth's rotation without reference to the diurnal rhythm

> The earth rotates. (5G)

C. The answer implies an unspecified movement by the earth

> Well, the earth is moving all the time. (5G)

D. The answers implies that the sun is moving

> What do you mean, why? *(Yes, why does it look as if the sun rises in the morning and sets in the evening? It seem so to us...)* Well, it does too, doesn't it? (8P)

E. The answer is not based on the text

> I think, it's because you get tired in the evening. (5P)

F. Don't know

There were some A-category answers in each subgroup, but B-category answers were the most common. They make out 36 per cent of all answers. Answers referred to category A1 have a rather high degree of precision and can be deduced from the text. One of these answers was given by one of the poor readers in grade 5, who did not comprehend much of text 3 (the folk-tale), but the content of text 2 was familiar to him: "This sort of thing I have read about earlier, I knew it before". The A2-answers are not as distinct but still exhibit some understanding of the night-and-day phenomenon. Especially some young students were approaching a correct explanation and their answers can be found in category A2.

In some cases the differences between A1- and A2-answers seem marginal:

> The earth spins and the sun shines on one spot all the time, and when we get to the place where the sun is not, it becomes night for us. On the way in, it's half sunshine, half darkness, and that's when it's dawn. (5P) Cat A1
>
> I can't explain it. The sun disappears, doesn't it. The earth circles around all the time, and the sun appears in other places, and then we get night. And when it comes back again, it becomes day. (5P) Cat A2

The first is the more explicit answer of the two. In the second example you get the impression that the student was not quite sure whether it is the sun or the earth that is in motion, even if he said that "the earth circles around". The sun "disappears" and "appears in other places", he said, while the first student clearly expressed that the sun is immobile in relation to the earth. Both students were unskilled grade 5 readers. As this was a rather heterogeneous group, also in the sense that their reading difficulties were of various origin, the differences in their answers may well be due to deficits in verbal expression or prior knowledge rather than comprehension problems. This was particularly likely concerning text 2 with so obvious a link to prior knowledge and experience, as indicated before.

Some of the answers were so unspecific that they became extremely difficult to interpret, e.g.:

> It disappears in the evening, and then it's the earth that is spinning. (5G)
>
> You don't notice that the earth spins. You see that the sun rises in the east and sets in the west. (5P)
>
> It moves. *(Which one, the earth or the sun?)* Both are moving, like this ... */shows in the air/.* The earth is spinning. (5P)

All these answers have been referred to category B, as they, although based on a conception that the earth circles around, did not relate to the night-and-day phenomenon. The following answers were dubious - the students did exhibit some awareness of the conditions but did not produce any attempts to explain them:

> For instance, that thing about the sun, you never think about that we are the ones who move. But sometimes on my way home from school I actually think that I'm standing upside down. (8G)
>
> We circle around all the time, as I said. Then the sun gets further and further away. Then it looks precisely as if... well, we are circling, and the sun is shining */shows with his hands/* and then it looks as if the sun disappears down under, but it doesn't really, because we are spinning away. We always spin at a slant, like this ... */shows with his hands/*. (8P)

These two answers have also been placed in category B, although they could be said to dwell somewhere in between categories A and B. The students apparently were in a *transitional stage*, on the way to clearer notions and better awareness.

Some of the answers placed in category C were even more difficult to interpret:

> Because it moves. One can see that the sun in the morning is over there and so on ... And if one doesn't know anything about it, I would guess that the sun was moving. It's not to be taken for granted, but that's what one may be thinking. (8G)

An answer like the last one also indicates that this skilled grade 8 reader knew it is not the sun that moves, but she gave no clues as to the actual facts of the matter.

The category D-answers, implying a movement by the sun, occurred among good readers in grade 5 (three answers) and poor readers in grade 8 (four answers). It is possible that also this type of answer could be explained by shortcomings in verbal ability rather than by a possibly remaining geocentric view of the universe.

> In the morning it's in the east and in the evening it's going further and further away, so you think it's going down. (5G)
>
> It shines over half of the globe at one time. Then the sun disappears, and then I suppose it stays on the other side. (5G)

Sometimes, however, one may wonder if the students in fact did believe that the sun is the mobile object: "Well, because he turns, doesn't he, or he moves away ..."; "What do you mean, why? ... Well, it does, too, doesn't it?"; "It moves like a rainbow". These types of answers have been placed in category D. The one and only example in category E ("I think it's because you get tired in the evening") came from an unskilled grade 5 reader. It may be regarded as anthropocentric in implying that human needs and not the relation between the earth and the sun are causing the shift between night and day.

Some students (12 out of 53 from all subgroups) tried to express the difference between what we *sense* and what we *know*, a rather sophisticated view if not very explicit:

> Because we don't feel that the earth moves, so we think that it's the sun. (5G) Cat C.
>
> You don't notice that the earth rotates. You can see that the sun rises in the east and sets in the west. (5P) Cat B
>
> Well, it's just that we go around the sun. The earth goes around the sun, so it seems as if it rises. (8G) Cat C
>
> Because the earth spins so slowly that we don't feel it. And then there is the earth's force of gravity, it's quite strong, so that when it spins nothing happens, because it's so slow. Everything has such good gravitation. (8P) Cat B.

Q 81. What movements is the earth making?

In contrast to Q 80, which to a large extent appealed to the student's senses and thus triggered off a spontaneous reaction based on experience, it could be said that Q 81 is a typical school-knowledge question. The phenomenon of earth circulation is normally dealt with briefly in the lower primary grade, so all students are more or less familiar with it. Some of them apparently had problems in explaining the earth movements verbally, so they decided to assist with hand movements.

> It spins ... (*How? Like this? /I. demonstrates/*) No, not like that ... */S. laughs/* (*Well it does ...*) OK, it does, but not that fast. (5P)
>
> It goes round like this ... and like this ... */S. demonstrates two circular movements on the table./* (5G)

It is also interesting to note that students who had difficulties in explaining the movements made no attempts to use the metaphors mentioned in the text to help them explain. After all, in this type of text metaphors are used by the author to assist the readers and make it easier for them to comprehend conceptually difficult matters. This further underlines the fact that the text per se was of limited importance for answering the questions. In this case, the students seemed to rely more on their prior knowledge and sensory experiences in the subject area. However, one of the grade 5 skilled readers who had already answered the question picked up the cue from the interviewer, and another student created his own metaphor:

> It goes round ... spins, and then it goes round the sun, too. *(Do you remember anything special in the text which was supposed to illustrate this?)* Yes, it was compared with one of those toy tops. (5G)
>
> It's like an axis that holds it ... like one of those globes you put on a table, you know, with a lamp in it ... (5P)

Q 82. How can we observe that the earth is rotating?

The phrasing of this question is taken directly from the text:

> We can observe that the earth rotates by looking out from it. The view from the earth is different at different times of the day. In the morning we see the sun in the east. By noon the earth has gradually turned, so that we can see the sun high up in the sky. When evening comes the earth has turned even more, and we see the sun standing low in the west. Finally, the sun disappears below the horizon. It gets dark. It is night.
>
> The earth rotates from west to east. Therefore, the sun seems to move in the opposite direction. In fact, it looks as if the sun is moving and we are standing still.

In this passage, what is intended as evidence that the earth rotates might as well prove the opposite, i.e., that the sun is moving. So, again the question is whether to believe what you perceive with your own senses or what you know through other means, by reading or watching TV or film. The most natural answer to this question would be "We can't observe it!", which is what one third of the students actually said. Thirty-six per cent of the students indicated that our perceptions of earth rotation depend on what position the earth actually has in relation to the sun at different times of the day, but, although this information is embedded in the text, far from all answers emanated from it.

Categorising the answers to this question brings about some problems. Some of the students gave answers which were clearly based more on their own sensory perceptions than on prior knowledge of facts. Others based their answers quite as clearly either on prior factual knowledge or on the text they had just read. It would therefore be appropriate to classify the answers as *knowledge-based*, *text-based* and *experience-based*, although such a classification causes several borderline cases (which, indeed, any other classification would do as well), the topic being one that most human beings have experience of. In fact, some students in their answers exhibited an *integration* of sensory perception and/or prior knowledge on one hand and text comprehension on the other.

Primarily, the categorisation was based on the students' explicit answers, one criterion being the extent to which knowledge, text and/or experience, seemed to have influenced them. Category A-answers demonstrated integration of experience and knowledge in relation to the text. The answers in category B were mainly based on the text, some of the wordings being more or less direct quotations or simplifications of the content. Category C-answers were based on the students' sensory perceptions, which lead them to the notion that "what you can't observe, you can't know anything about". Answers placed in category D were more heterogeneous and sometimes difficult to interpret, although having one feature in common, that they were based on misconceptions of the phenomenon. Category E contains the Don't know-answers.

Q 82. Categories

A. Integrated answers: answers where knowledge, text comprehension and/or sensory perceptions are integrated

> By looking up into the sky. You may think that it's the sky that moves, but really, it's us moving. (5G)

B. Text-based answers: answers based on comprehension of the text only

> You look at the sun, you feel nothing. If you look at the sun in the morning it rises in the east, and sets in the west in the evening. (8G)

C. Experience-based answers: answers based on the students' own sensory perceptions

> I don't notice that. (5G)

D. Answers based on misconceptions or otherwise difficult to interpret

> On the clouds sometimes. (8P)

E. Don't know

The answers to this question showed only minor differences between the performance groups, even if there were fewer knowledge- and text-based answers and more unreflected answers among the unskilled readers, in grade 5 in particular. In as much as the students said that they could observe the rotation of the earth by watching something beyond the earth itself, they mentioned the sun most often (19 students). Five students said they could observe the phenomenon by looking at the clouds, whereas a few mentioned the sky, the moon, or the stars. Neither of these items are mentioned in the text in this particular context.

The following is an example of a somewhat dubious category A-answer. It was difficult to interpret, but all the same it demonstrated some insight:

> We who sit here notice nothing. But those who deal with it... We have to go up in rockets and such, to look ... In the old days people believed that the earth was flat as a pancake and stood still. (5P)

One student, a skilled grade 8 reader, used the metaphor about the train to illustrate his answer. It is possible that some of the other students who mentioned the clouds and the sky as "points of reference" also had thought about this metaphor without taking it the whole distance. The text passage reads:

> Sometimes it is hard for you to tell whether you move past an object or the object moves past you. Have you ever been in a train and said to yourself: - Is it my train moving? Or is it the train on the other track that is moving? If your train starts out very slowly and without any jerk, it seems as if the train on the next track is moving and yours is standing still.

Q 83. Why did people in the old days believe that the sun moved across the sky and that the earth was standing still?

In the text there is no explicit explanation as to why people believed that the earth was immobile and the sun moved. The reader has to make an inference. If one merely tries to deduce it from the text the only reasonable answer would be: "Because it looks that way". Among the students in my study this type of answer, which implies that people relied on their perceptions, was rather common (about 40 per cent). Some of these answers were quite detailed and purported the idea that people believed what they saw with their own eyes: the earth was flat and in a fixed position - otherwise one would have been upside-down sometimes and in danger of falling off the earth, and, consequently, the sun must be circling around the immobile earth.

That people in the past had no means of knowing how things really were in space, was quite clear to many students, who also tried to explain why; e.g., because they had no instruments or rockets whereby they could measure or observe outer space. Such answers were given only in grade 5. One student in grade 8 explained that in those days people had a geocentric view, but none of the students mentioned anything about the then prevailing religious ideas by which all natural phenomena were explained, including the diurnal rhythm.

When categorising the answers I have taken into consideration the nature of the explanation presented by the student. In category A the answers are rather *intellectually* or *academically oriented* - the students tried to explain why people could not know, or how people were thinking. The category B-answers are more *perceptually oriented* - people had the wrong ideas because they believed what they perceived. Category C-answers are based on some *misconception* - the students seem to think that conditions have changed: in the old days it actually *was* the sun that moved.

It was not possible to infer the answer directly from the text. Instead you had to get information from different parts of the text and then draw a conclusion. In some cases it was obvious that the students had added prior knowledge to this information, since they used phrases and words that are not found in the text.

> Because they didn't know, and they didn't have rockets and such things that we have. (5G)
>
> We who are walking around here, we have a kind of force inside us, just like a magnet. But our brains are so "short" that we don't quite understand. We can't sense that we travel around like that, but the magnet keeps us in place. (5P)
>
> That's what they believed before, that the earth was lying flat just like a pancake, mostly still, and that the sun was shining all over the world. (8P)

> They didn't think it was possible to be upside-down. If the earth was spinning, then one would be upside-down, and that's impossible. Because if you were walking upside-down you would fall off the earth. So it had to be the sun that was moving. (5G)

The text does not mention that people used to believe that the earth was flat as a pancake, and yet, this idea appears in 20 per cent of the answers. One of the skilled 8th-graders mentioned the metaphor of the train:

> No wonder people thought it was the sun that was moving, because sometimes it's hard to see what is what when objects are moving. When you are in a train, for instance, or in a car, sometimes you can imagine that it's the landscape that's moving. You know it isn't so, but you may feel that way. (8G)

Q 84. What is an astronomical[1] *day? Could you explain to me what it means?*

In the text the accurate answer to this question is given three times in different text passages. All the same, several of the poor readers did not seem to have registered it, even if most of them knew from before that an astronomical day has 24 hours. Sixty per cent of the answers contained that particular piece of information. Almost half of all students have given an accurate answer in saying that an astronomical day is the time it takes for the earth to rotate once around its axis.

It is obvious that the answers, to a great extent, were based on what the students knew before about the topic. Some students, however, were quite uncertain about their answers and tried to refer to the text or look for clues in conversation with the interviewer.

> Night and day ... *(Mmm..)* 24 hours! *(Yes, that, too ...)* So what else? */At this point the interviewer notices that the student is looking for clues, and both are laughing./* You tell me! I don't know. *(Well, you can explain it by saying it's the time it takes for the earth to rotate once around its axis.)* Yes, that's it, of course ... (5P)

> There was an explanation, but I can't quite remember ... *(Actually, you have already mentioned it.)* Well, it's about the sun then, that every time the sun is on our side we have made a half-turn, and then the sun comes to the other side and then one day has gone by. (5G)

There may be some doubt as to locating the last answer in category A, but the student seemed to have understood the principle, although she was not quite able to express it verbally. As for the interviewer's remark, it could not really be regarded as help in this case. In other cases prompting by the interviewer did not seem enough to trigger off a more accurate answer:

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[1] It should be mentioned that in Swedish there is a special word for the concept "astronomical day" - "dygn". This word is quite commonly used, and all students would know about it. This explains why so many have answered "one day and one night". Swedish students would not be likely to use the word "astronomical" in this context.

> You mean how many hours? *(Well, do you know that?)* Yes, it's 24. *(Can you explain what an astronomical day is then?)* Yes, it's ... No, I can't. *(I think you know.)* No, not that I remember at the moment ... (8P)

Q 85. Could you explain to me what is meant by a year?

Several text passages touch upon the definition of a year. In four places throughout the text one can read that a year is the time it takes for the earth to travel once around the sun. Despite this, only half of the students answered the question correctly. Five unskilled readers, three in grade 5, two in grade 8, gave no answer at all. Forthy per cent of the students have included the information that the year has 365 days.

> It's the time it takes, 365 days, the time it takes for the earth to turn against the sun. (8G)
>
> I suppose it's a time concept. The earth circles[2] around in one year, but it takes a little longer, so every four years we have a leap-year, one day extra (5G)
>
> It's many days. It's when it has moved around one lap, then a year has passed. *(What is it /the earth/ moving around? What is in the middle?)* Well, there's like a core in the middle ... *(We talked earlier about what people believed in the old days regarding the earth and the sun ...)* Well yes, the sun is in the middle, I forgot to say that. (5P)

Except for the unskilled readers in grade 5 the students to a large extent gave the same type of answers to questions 84 and 85. This is true for 77 per cent of the skilled and 61 per cent of the unskilled readers in grade 8, and for 67 per cent of the skilled readers in grade 5. Among the unskilled readers in grade 5 only two out of ten gave the same type of answers to both questions, thus underlining the inconsistency in the way they answer text-related questions.

Some of the students have tried to illustrate their answers by using wordings from the text:

> Mostly 365 days. Instead of saying that you are 2365 days old you say that you are so and so many years. (5G)
>
> When the earth is spinning like this ... */Demonstrates/* It takes that long. Every time the earth has circled one round you add one year. (5P)
>
> When it has made one lap around the sun a year has passed, and you have become one year older, 365 days and whatever ... (8P)

---

[2] The Swedish verb "snurra" is often used by the students, as in this case. It is more inexact than the English verb "circle", in that it refers to any kind of "round-about" movement.

Two students mentioned that a year also means change of seasons, although this was not an issue in the text:

> 365 days, or days and nights, 12 months, different seasons. (5P)
>
> It's the time it takes for us to move all around the sun. And as we circle it becomes spring and winter and that ... (8G)

One student seemed to have misunderstood the matter or at least exhibited a very vague idea about it:

> It's when the earth has gone around once. *(Gone around what?)* Well ... that axis ... (8P)

Q 86. Why do we get leap-year and how often does it occur?

More than half of the students demonstrated in their answers that they knew what a leap-year is, i.e., that we get an extra day every four years. On the other hand, not many have understood why this is so, even if the explanation in the text is the simplest possible. The question has two parts, the first part being the most difficult one to answer (*Why do we get leap-year?* and *How often does it occur?*). The difference between good and poor readers is quite obvious in this case. Only one poor reader (in grade 5) gave an explanatory answer, as against half of the good readers. Some students borrowed the wordings directly from the text, while others clearly had problems in expressing their knowledge, and information from different parts of the text was muddled and sometimes confused with what they had gathered from other sources:

> ... *(In a leap-year there is ...)* 366 days. *(Why is that?)* The earth perhaps spins a little slower, so for it to be exact, that's how it has to be. So that there is no day which doesn't exist. *(Why would there be a day which doesn't exist?)* If you add up those days and nights that are longer, then in four years you would get as much as one day. Maybe it takes a little longer than 365 days for the earth to travel around the sun. *(How often is that?)* Every four years. (5G)
>
> I've heard others say so. I don't know if it's in the text, I've forgotten that. So, when it goes around it takes an extra minute or something, I've heard somebody say, each day. Well, I suppose it's not exactly a minute, but anyway ... Then you add up, and it ends up as one extra day. *(How often does that happen?)* What is it now ... I'm so bloody forgetful. *(Well, I don't know about that ...)* ... *(Is this a leap-year?)* I've got no idea! *(In fact, it is.)* Well, then it's every four years. *(I'll give you a hint: when the Olympic Games are arranged, that's a leap-year.)* Yes, I thought as much, I mean that it's every four years. (8G)

There were as many mentioning-answers as explaining-answers among the good readers in grade 8. Among the poor readers in grade 8 one third gave mentioning-answers. It is possible that some students could have elaborated their responses had they been reminded that the task was to *explain why there is* such a concept as leap-year and not just to *mention or describe its consequences*, i.e., that we get an extra day every four years.

One student had some very special comments about the consequences of the leap-year:

> There was something about an extra day. *(How often does that occur?)* Every four years. Isn't it this year? I feel sorry for those poor things whose birthday is on the 29th. Every four years, imagine! Poor things! *(So, why do we get leap-year?)* I don't know. That's something I don't remember. (8G)

In some cases the students tried to remember exactly what the text said, the reason why they tended to mix different text passages, some of which were irrelevant to that particular question, as in the following two examples:

> One day is much longer, because the sun is shining much longer one day. *(How often does hat happen?)* Every fourth year. (8P)
>
> It's because of the earth, I think it said. But why, I don't know. *(How often?)* Fourteen times, I think, or something like that. *(I think you mentioned it before?)* Don't know. (8P)

In some cases it was quite obvious that the students had misinterpreted the text passage ("There is always one day left over in a year, so there was some time left"), but quite as often they seemed to relate to some piece of prior knowledge ("Every leap-year there are 29 days in February"), correct as it may be it does not explain the phenomenon.

It was not unusual that the students referred to their poor memory: "I know it, but I can't remember"; "But I've known it ... long time ago". Sometimes they were searching for clues or they tried to guess:

> ... *(Do you know what a leap-year is?)* Yes, I think so ... *(How often does it occur?)* Once a year ... *(No, not every year, but this year is a leap-year.)* No, every two years ... or every third year? *(It's every four years. Do you know why this happens?)* No. (5P)
>
> It's because ... no ... It happens ... One has to think back ... what's in the geography-book. *(Have you talked about that in class?)* It was a long time ago no ... *(How often does it occur?)* Every four years. *(Why is that? What does it mean?)* There's an extra day, there are 366 days. So, somewhere or other one fourth must be added. (8G)

Conclusions as regards text 2

Text 2 has a narrative form, which simplifies the otherwise complicated, although familiar content. The students therefore generally found the text easy to read. Conceptually, this text is more difficult than text 1, which is a more direct exposition of facts and does not require any deeper understanding of concepts. Some of the younger readers claimed that they preferred text 1 for this reason, but most of the unskilled readers, as well as the skilled ones, said that text 2 was more interesting, because it dealt with "general knowledge" rather than the "school knowledge" crammed into text 1.

There are few students (seven in all) who seem to maintain the notion that the sun is moving across the sky, as if they recalled a passage in the Old Testament instead of a phrase from the text:

> The sun rises and the sun goes down, and hastens to the place where it rises. (Ecclesiastes 1:5)

The students' experience tells them that things are not always what they seem. Knowing that, they can easily put themselves in the position of people from long ago, who had no proper instruments or other means to find out about the universe. Scientists had to rely upon mathematical calculations and earlier scientists' works and then relate this to what they themselves observed. Furthermore, they had the constraints of the Christian church to consider (Sandblad, 1962) when they built up and presented their revolutionary theories about the world being round and the sun being the centre of the universe. These are facts taken for granted today, and yet, it seems as if some 12- and 15-year olds have not quite grasped them.

However, it seems that in some cases the inability to explain the relations between the earth and the sun, and other astronomical phenomena, are more due to verbal deficiencies than misunderstanding of facts. Quite often the students have to add hand movements to their words, a behaviour which in this context becomes rather illustrative.

All in all, the older skilled readers exhibit their superiority in responding to the questions about the content of text 2 by being able to integrate prior experience and knowledge with information derived from the text they have read, and to verbally express the outcome of this integration. The older unskilled readers seem to answer the questions more haphazardly, their responses are either *text-based* or *knowledge-based*, or *experience-based*. To them the text may - or may not - work as confirmation of their prior experience and knowledge, or it may be used for this occasion only - the text is seen as a separate entity and does not add new facts to their prior knowledge. The poor readers in grade 8 have a long history of school failure, which also includes the inability to answer text-based questions. The differences in grade 5 between good and poor readers are less pronounced, but the poor readers are more inclined to base their answers on their own sensory perception and thus disregard the text. Their limited word knowledge may also hinder them from finding appropriate answers when the questions are about complicated topics. Furthermore, certain clues in the text, which are intended to enhance comprehension of certain phenomena, go unnoticed by the poor readers. This is the case with the special assistance offered by the author in his/her use of metaphors, such as comparing the earth movements with a toy and a merry-go-round, or drawing parallels with a ride on a train in order to explain why it is difficult to see that the earth is moving.

Questions about the content of text 3

This narrative is a folk-tale about a wealthy landowner, who wants to marry a young girl, the daughter of a poor farmer, and what happens to him when he tries to persuade the girl to grant his wish. The story exists in various forms in Scandinavia and with different titles, such as "The landowner's bride" or "The bride of a gentleman" (App 3 C). This particular version can be found in the same textbook for the primary grades (reading level 5) as text 2. It has a typical story structure with rather short paragraphs and a substantial amount of dialogue. A few words in the text are not so commonly used in present-day Swedish, but in general the text is quite easy to read (LIX=29), which most students also said.

The reading task for a story is, of course, different from that for the expository texts. A folk-tale always contains some moral message which most often is not expressed outright but has to be inferred from the text. Inference making and knowledge that some words may have a literal meaning as well as a hidden meaning become essential for a good result. Basically, the best readers are those who have caught the essence of the story. The outcome space for the responses to the content questions varies from inferential to literal, text-based mentioning; however, it also includes free interpretations sometimes "out of the blue".

Q 90. Why did the squire want to marry the girl?

The answer to this question could be derived more or less directly from the text, where two reasons can be found:

> He had a lot of silver in his treasure chest and gold in the bank, but there was one thing missing, and that was a wife ... The squire liked her very much, and as she was a poor peasant girl he thought that she would be more than happy to get married and that she would say yes at once if he proposed to her.

Already here, in the beginning of the story, the author paves the way for the plot, which some of the students had observed. In some cases, the students went beyond the text and gave answers which were beside the point. The categorisation was made so that answers clearly based on the text and implying the plot have been placed in category A, whereas answers derived from the text but without giving any clue as to the plot have been placed in category B. Category C-answers were not directly based on the text, although they did have some relevance to the question. Don't know-answers are in category D.

Q 90. Categories

A. The answer is deduced from the text and includes an inference implying the plot of the story

> Well, he had no wife, and then he probably thought, that ... since he had money and he needed a hostess. It doesn't say, but I think it's something like that. (8G)

B. The answer is deduced from the text and sometimes includes an inference although without reference to the plot

> Because he had none to live with, or he had everything he wanted but he had no wife. (5G)

C. The answer is not directly deduced from the text but bares some relevance to the question

> I think he thought she was beautiful. I think it read something like that. (5P)
>
> I don't know ... maybe she was to help him in the kitchen. (8P)

D. Don't know

Over all, most answers (43%) are in category B. Such answers were most common in all groups but one: unskilled readers in grade 8, over half of which gave category C-answers. Only four students (poor readers, two from each grade) were unable to answer this question, but several others started their answers with "I don't know". However, they needed no further assistance to deliver an answer:

> Can't remember ... because she was pretty or handsome. (8P)
>
> I don't know ... I think it was that he thought she was pretty and that he felt sorry for her. He didn't have any wife either. (5P)

There is nothing in the text about the girl being beautiful or that the man was in love with her or felt sorry for her (this last, rather altruistic motif occurred only among poor readers in grade 5). Nevertheless, such statements appeared in about 40 per cent of the answers - somewhat more often among the poor readers - which shows that these phenomena belong to the standard schema for a story of this kind.

Q 91. What did the girl think about that?

The most common answer to this question was that the girl thought he was too old for her, which is also said in the text. Some answers had little to do with the text - the students simply invented an explanation to the girl's objections. Others were quite well phrased and followed a line of thought although it may go beyond what was given in the text. In the first three of the examples below, an idea about the essence of the story can be traced.

> She didn't like it at all, because she didn't want to marry such an old man, however rich she would become. (8G)

> He shouldn't bother to come here and butter me up! No, but ... *(Yes, why did she think that way?)* Only because he has money and that ... She thought he takes for granted that I want to marry him because he's rich. But she didn't want to. (8G)

> She didn't think it was any good, she didn't like it. *(Why?)* I don't really know ... She thought, I suppose, that rich people cannot always get what they want. (8P)

> I don't know. I thought it was a bit silly, because she wanted to marry someone her own age. (8P)

A skilled reader in grade 8 started a conversation with the interviewer about one of the words in the passage, "miser" ("girigbuk", in Swedish "girig" means "greedy" and "buk" means "belly"). Not being familiar with the word he pronounced it "girigburk", a non-existent word which could be translated as "greedy can":

> She didn't want an old "greedy can". *(Actually, it's "greedy belly". Do you know what that is?)* Yes, I suppose it's a sleazy old fellow. *(Not quite - see, there was another word you didn't quite understand.)* Yes. *(But anyway, it's a miser.)* Yes, that's right, he is greedy, that's stingy. But "greedy belly", that's a funny word. *(Yes, it's an old-fashioned word.)* (8G)

Q 92. How was the girl's father going to make her agree to the marriage?

The text tells about how the squire, after having been rejected several times, sent for the girl's father and demanded him to put his daughter right and prepare for the wedding. As the story continues, wedding preparations are under way and the problem arises how to get the girl into the squire's house. The information for answering this question is all found in the text and it caused no problems. Only a few students failed to give a reasonable answer.

Q 93. Why was the father so eager for the marriage to take place?

The answer to this question could be derived directly from the text, and very few students (five in all) failed to answer it. Most students answered according to the text, but some answers deviated and went beyond the letter of the text. In the following example, the student was not really answering the question, although his response was taken from the text, almost verbatim. Obviously, he was referring to what the landowner, not the father, was thinking:

> He thought she would be flattered, when she saw everything he had done, like the nice wedding dress. (8P)

Some of the answers were free interpretations claiming that the farmer and his daughter were likely to inherit the squire soon. This conclusion is a very plausible one, the landowner being both old and rich and very eager to marry the girl.

Q 94. What did the girl do when the farm-boy came to pick her up?

The good readers in grade 5 spontaneously gave an explicit answer: "She tells him to take the mare", and most of them could also explain the girl's actions, with a little help from the interviewer. Nine out of 13 of the good readers in grade 8, however, needed no help to explain what happened as if they immediately identified themselves with the girl:

> The maid understood what it was all about, so she told him that it was the maroon mare in the pasture that he was to pick up. (8G)

The unskilled readers answered in a more obscure way. They were in general less articulate. They tended to misinterpret what was not explicitly stated in the text; in this particular part of the text some of them had gathered that the girl actually did go along with the boy to the squire's house.

The categorisation of these answers were based on the extent to which the students had been able to read between the lines, in this case something that was necessary for the reader to understand the rest of the text. In category A-answers they had spontaneously inferred what was not explicit in the text. The answers of category B showed that the students were on the right track - with little assistance from the interviewer they made clear that they had understood the situation. Category C-answers just recalled the text, whereas category D-answers showed that the respondents had an idea that the text passage had something to do with a horse. The answers in category E were placed there because the students seemed to have misunderstood the passage. Don't know-answers were placed in category F.

Q 94. Categories

A. The answer is an inference based on the text

> I think she detected that they had ... She had a hunch what was going on, even if they didn't say it explicitly. He didn't know much more than she did. Shrewd as she was, she pointed at the mare. Very smart ... she was brave, too. (8G)

> The boy didn't know what he was supposed to get. She said to him that the horse was standing a bit further away in the pasture, grazing. And as the boy didn't know that it was the farmer's daughter he was to pick up, he just went along with it. (8G)

B. The answer is a cued inference based on the text

> She told the farm-boy to go and get a filly *(How could she do that?)* I think because the boy didn't know it was supposed to be a bride. (5G)
>
> Fooled him. *(In what way?)* Said that he was to get the mare. *(How could she fool him?)* He didn't know who he was to collect. (8P)

C. The answer is a mere recalling of the text

> She said he was to get the horse, the maroon mare. (8G)
>
> She said that she is over there in the pasture, and then it turned out to be the maroon mare. (8P)

D. The answer implies that the text is about a horse

> Yes, what did she do? Actually, I don't remember. I just remember that he came to get her on a mare, a horse, that is. Then I don't know, it was so mixed up, sort of. There were horses and old men and all sorts. (5P)
>
> Put the clothes on the mare, or whatever it was. (8P)

E. The answer is based on a misunderstanding of the text passage

> A boy ... *(The girl didn't come with him.)* No, he rode back home. *(On what?)* On a horse. *(What horse?)* Well, I don't know if he was riding. Does it say? *(Yes, but what horse was it?)* You mean what's her name? *(No, there's nothing about that. But where did he get the horse from?)* From the girl, I think. (5P)
>
> She didn't want to, she refused, one could almost say. But finally, she gave in and came along. *(Maybe you missed that part of the text. When the boy went to pick up the girl, he got something else to take with him. Do you remember?)* It wasn't the girl, really, because it was another boy, wasn't it? *(You're right in saying it wasn't the girl. She fooled the boy)* Then it was another servant girl, was it? No, I don't know. (8P)

F. Don't know

The differences between good and poor readers were very clear at this point. Skilled readers in grade 8 gave only category A- and C-answers (9 of 13 were in category A), whereas the distribution in the other performance groups gives a rather diverse picture. It seems that about half of the poor readers in both grades did not quite understand this text passage, a passage which is very essential for the whole story. It is located almost exactly in the middle of the text. All good readers (except one in grade 5, who claimed that he did not remember the passage) answered according to the information in the text, although some were vague ("She told him to get the horse"). Some commented, that the girl had detected that the father and the boy tried to double-cross her, or that she fooled the others.

One complication for several poor readers was that they did not know the meaning of the word "mare", a rather uncommon word in present-day Swedish. Some guessed that it was a "cow or some other animal", others thought it was "a dirty name for the bride". A few of the good readers were also unaware of the meaning of "mare", but they used some strategy to find out. They either asked the interviewer explicitly after they finished reading the text, or kept it in mind while reading until the context gave them the right clue as to the meaning (chapter 6). As one student put it: "I understood what it meant later, when the text said that the boy jumped onto the back of the horse and took a ride home."

Q 95. Why did the boy at first refuse to do as his master told him? What did the boy think about his master?

The answers to this question were not easy to categorise. In principle, those students who fully understood the text passage answered either that the boy thought it was impossible to take a horse into the house, let alone put clothes on it, or that the boy thought his master must have gone off his rocker. A few students (poor readers in grade 8) seemed to have misunderstood the text (or this particular question), and more than half of the poor readers in grade 5 could give no answer.

> Don't know ... He */the farm hand/* was in love with her, too, I guess. (8P)

Some of the students seemed to have their own ideas as to why the boy did as he was told after all:

> He probably thought that he */the squire/* had gone mad. He didn't dare to refuse, they were not aloud to in those days. (8G)
>
> Don't know, perhaps he wasn't strong enough. And then, the squire would be angry with him. (8G)
>
> It won't work with the horse ... But he didn't say that, because he was afraid of him. (8G)

Some of the unskilled readers said that they did not quite understand, others gave answers which demonstrated that they had misunderstood the passage.

> I suppose he didn't want to go get her, or whatever ... *(Well, I think he didn't mind going, but he didn't know what exactly he was going for.)* No, that's it ... *(So, he got the mare)* Yes ... *(But then the boy didn't want to do what his master told him. Why was that, you think?)* I didn't quite grasp that. There was nothing really happening in that part, was there? Well, OK, something happened but it was the same thing all the time, like. (5P)
>
> Don't know. He */the farm-hand/* was in love with her, too, I guess. (8P)

Q 96. What do you think the wedding guests thought, when they saw that "bride"

The text says nothing outwardly about what the guests might have been thinking, so this is an inferential question. Only two of the poor readers in grade 8 did not answer the question, but some of the poor readers seemed to have misunderstood the text on this point and therefore made the wrong inference.

> They said like this: 'We never thought he would get married to a peasant girl!' (5P)
>
> That was not what they had thought she was going to be like. Because I think the master had been boasting about her, how beautiful she was and all that. (8P)
>
> Maybe they thought he was no good. *(But what sort of bride was it they brought in?)* A red-haired girl. (8P)

Q 97. What does the last sentence mean: "And the squire was so pleased with his bride that he never went out courting again"?

To be able to conceive the unravelling of the story one must have understood the ironic meaning of the word "pleased" in this last sentence. Those who understood the word literally, had no possibility to grasp the essence of the story - they either thought that the squire married the horse or that he married the girl.

The categorisation was made so that category A contains the answers where the students have clearly revealed the irony of the word "pleased". Category B-answers indicated that the squire had been ridiculed but gave no clear indication as to the students' understanding of the word. Category C-answers disclosed that the students, at least in this context, seemed to prevail in fairy-land, where everything is possible - including marrying a horse - whereas the category D-answers demonstrated another type of misunderstanding - that the squire actually married the girl. Nothing in the text indicates that the girl was even present in the house where the last incident took place, whereas the horse was indeed present. This fact, together with the unmistakable fairy-tale characteristics of the story, makes a mistake like the one in category C-answers quite understandable. It may seem that the category D-answers are more realistic, but they show that the students had misunderstood essential parts of the text. Hence the reversed order of categories C and D.

Q 97. Categories

A. The answer indicates that the student has disclosed the irony of the word "pleased"

> Well, it's more like the opposite, he was *not* pleased. *(Do you know what that is called?)* No, but I use it all the time.. *(It's usually called irony ...)* Wait a minute....mockery! We did that yesterday ... in our Swedish test ... *(It means quite the opposite to the words you're using.)* Yes, I think my mother has used that some time, when she tells me: Don't be so ironic! (8G)
>
> It means that he was so pleased, that he'd probably had enough ... No wonder, because he can't have been very pleased with that bride, I

> shouldn't think. That really taught him a lesson, so that he never went out again to propose to someone. He was thinking of theconsequences, what happened now that they fooled him. Totally disgraced he was. (8G)

B. The answer indicates that the word "pleased" should not be understood literally

> I think he didn't want to be made a fool again. (5G)
>
> He'd had enough. (8P)

C. The answer indicates that the student has understood the word "pleased" literally as well as the story ending

> That he got married to the horse. (8P)
>
> He was pleased with the bride and he didn't want to propose to anyone else. *(What bride was he pleased with?)* The horse. *(Did he marry the horse?)* Yes, I think so, I don't know. *(How could he do that?)* I don't know. */S. laughs, somewhat embarrassed/* (5G)

D. The answer indicates that the student has understood the word "pleased" literally and offers an alternative ending

> No, I don't know ... what was that again? */I. repeats the question/* It means that he was so pleased with the girl, that he never wanted to get rid of her. He would always have her, would never propose to anyone else. (5P)
>
> That he didn't marry anyone else, he was pleased with the one he had. He was happy and glad. *(So it's a happy ending, you think?)* Yes, he gets what he wants, doesn't he? (8P)

E. Don't know

> So it doesn't mean what it says? Is that what you're saying? ... No, I don't quite know. (8H)
>
> What's that supposed to mean? *(Well, I'm asking you.)* What did he say? */I. repeats the question/* I don't know what that is. (5G)

Most of the don't know-answers were found among the poor readers in grade 8 (about one third of that group), otherwise there were only a few. The poor readers in grade 5 are not at all represented in category A (almost half of them had misunderstood this passage and are to be found in category D). Not so the poor readers in grade 8, one third of whom had understood the double meaning of the word "pleased", even if they had not fully comprehended the rest of the text. More than half of the good readers in grade 8 have delivered category A-answers, whereas not quite half of the good readers in grade 5 are in that category. The same amount of students from the latter group had their answers placed in category C, where also the other groups are represented, although the older students to a lesser extent.

This result corresponds well with studies of children's cognitive development (Piaget, Donaldson etc.). Twelve year-olds can easily dwell in the fantasies of fairyland, where practically everything is possible. A rich landowner marrying a horse may be a little eccentric, but such an event is quite possible - in fairyland. Even a few 8-graders seemed to accept the fairy-tale schema. In both age groups there were students who delivered an uncertain laugh together with their response, implying that, after all, they did not quite believe the literal wording of the story ending. Furthermore, those who did not accept that the squire married a horse, would rather claim that he married the girl. Such an ending would fit better into the ordinary story schema.

> He was so happy that they got married, so he didn't look for anyone else. *(So that's how it ended? They got married?)* Yes, the text didn't say that they got married, but I assume that they did. (5P)
>
> He didn't see who it was, because the horse had a veil. *(But why was he pleased, you think?)* How should I know? *(Well, it's the word "pleased" which means something special in this case ...)* Hmm ... Maybe because he thought it was the daughter who finally agreed to marry him, maybe that's why he was pleased. (8G)

With few exceptions such responses come from unskilled readers, who are accustomed to not understanding everything they read. It is therefore likely that they would give an answer, which cannot be derived from the text but stands to reason, rather than an answer which to them seems unreasonable, however implied in the text. They may have missed some passage or other in the text, where the clues are embedded. So, they rather rely on their common sense (in this case: the squire marries the girl) than on something they may have misunderstood (i.e., the squire was supposed to marry a horse). It never occurs to them, that neither conclusion is the right one, because the irony of the last sentence has passed them by.

Irony is often difficult to detect, especially on a piece of paper without the clues given in oral communication. According to theories of human development (Piaget, as well as others) even some adults are insensitive to ironies although in other ways their thinking ability is well developed.

Q 98. How did it all end and why did it end like that?

Some of the students had difficulties in answering this question. Admittedly, it was not easy to answer. The students thought, either that they had already answered it or that the ending was evident: the squire was pleased with his bride, so the wedding must have taken place. This was especially true about the younger students; six out of twelve among the good readers and eight out of ten among the poor readers gave statements to that end. Such answers were placed in category C.

Category A-answers gave a reasonable account of the story ending and inferred some explanation, whereas category B-answers just stated that the wedding was called off. As indicated above, category C-answers were based on some misunderstanding of the text. In the answers of category D the students had moved away from the story itself and made comments about the author's intention to amuse his audience. The very few Don't know-answers were placed in category E.

Q 98. Categories

A. The answer gives a reasonable account of and inference about the story ending

> It was because the boy made a mistake and took the horse instead. (8G)
>
> The girl was smarter. *(Yes, that's the least you can say!)* Girls are always clever. He had an old-fashioned view, and such people are easy to out-smart. They think money can buy them everything. (8G)

B. The answer states that there was no wedding

> She didn't want to get married. (5G)
>
> There was no wedding. (8P)

C. The answer states that the wedding took place
C1. Between the squire and the girl

> It ended well, anyway. *(So they got married?)* Yes, they did. (5P)
>
> Yes, they got married. *(So that's how it ended?)* Well, it didn't say exactly that they got married, but I suppose they did. *(You mean the squire and the girl?)* Yes. (5P)

C2. Between the squire and the horse

> He got married to the horse. (8P)
>
> Yes, he married that horse, I think ... or he proposed ... (5P)

D. The answer states that the author intended to amuse his readers

> You mean why there was such an ending? I think it was supposed to be a little funny in the end. (5G)

E. Don't know

The category A-answers were either concentrated on the girl's actions - that she outsmarted them all and the squire in particular - or on the fact that there was a misunderstanding:

> It was so, that he didn't tell the farm-hand at first what he was supposed to fetch, and on top of that she didn't want to get married. (8G)
>
> He should have been more careful. I think, then he might even have had it his own way. (8P)

There were also some interesting discussions between the interviewer and the students, sometimes in an attempt to clear up uncertainties. In other instances the conversation was induced by the events in the story.

> So it happened. *(You mean the wedding?)* Yes, I believe so, but ... *(How did it end?)* ... *(Did it end in their getting wed?)* It doesn't say. *(Doesn't it?)* No. *(It's true, it actually doesn't say, but it says some-*

> *thing else instead. What happened?)* You mean what happened in the end? *(You don't remember that?)* No ... Yes, a little ... *(Let's see if we can make it out..)* Now, I got something! They got married in the end ... but it doesn't quite say ... Anyway, there's something about a veil and a wedding dress. (5P)

> That could have happened in real life. I mean with the squire and that... but about the horse I don't know. I think he must have made that up, something out of his imagination. But in real life it could very well be that a landowner wants a wife, maybe the neighbour's daughter, and thinks he's gonna get her... But that thing with the horse, that's imagination all right. *(So it's likely to happen today?)* Yes, but then the girls are all in on it. Take that Danish girl who got married to that travel agent Spies. He was old, wasn't he. It was only his money she was after, you can't say otherwise. *(But she may have liked him, too, don't you think? Maybe he was a nice man.)* I still think it was all for the money. (8G)

Conclusions as regards text 3

To most students it is quite obvious that text 3 has some features that makes it different from school texts in general. Good readers commonly refer to it as a story or a folk tale, whereas poor readers have some difficulties in finding the right genre label (see chapter 7), although they know it is a narrative ("a funny text" or "out of a good book"). There was only one student, a poor reader in grade 5, who explicitly stated in the interview that this text was more difficult to read than the others. He failed to recall but a small portion of the text, probably because he was too tired to read all of it, as it was the last one of the three.

Some of the rather uncommon words in the text, e.g., *mare, miser, courting*, adds to the poor readers' comprehension problems, but what is most disturbing to them is the hidden message and the unorthodox and ironic use of words, such as "pleased" in the last sentence. When things are winding up in the story, they understand that something is not quite right, but being used to always making mistakes they are convinced that they have misinterpreted something. Instead of going back in the text for control - which a confident reader would do - they either accept the literal wording of the text or invent a more credible ending to the story, unless they take the most easy way out and answer "don't know". This seems especially true about the older poor readers, whereas the younger ones more easily accept a fairy-tale ending, i.e., in this case, that the squire married the horse. So, this is a case where earlier experiences are "legitimate" and even poor readers bring them into their reading, when they do not trust their decoding and interpretation of the text. It becomes clear, in their answering the questions about this text, that poor readers do not make relevant inferences based on the text. Rather, their assumptions are often based on misunderstandings of certain passages. They read every passage separately without connecting it with the overall story, the same way they would read a subject matter text, where the overall structure is hierarchical and/or sequential and which usually carries no special message apart from conveying selected information (cf. text 1).

Concluding remarks - Different reading contracts for different texts

The differences between cognitive and metacognitive knowledge among poor readers can be clearly observed in the way they use the information in a text to answer questions about the content. They know that a fictional text is different from an instructional text, they know that a text which evokes their interest or has a familiar content usually is easier to read than a text with unknown content. They know that it is easier to remember a fictional text than one containing a lot of facts, and that it demands less effort. They also know, intuitively, that facts and fiction have different features or structures, which can be used to enhance the reading. However, this knowledge does not help them when they are trying to contract some meaning from what they read. Most of them also know that comprehension is the ultimate goal of reading, but they do not always know how comprehension comes about. They seem to treat all texts the same way and fail to notice distinctive elements like metaphors, thus applying a "horizontal" mode of reading. They seem to spend the same amount of effort on new and well known information.

Finally, it can be concluded that unskilled readers in general have less reading experiences, they rarely read in their leisure time (see chapter 9), and the texts most familiar to them are those in school books; this includes fairy-tales which are rather common in readers for the lower grades. So, the poor readers tend to read all texts in the same manner, using the same speed and thus spending the same amount of energy, regardless of which type of text or reading task they are engaged in. To them reading is an activity closely linked to school tasks and to their failures, a connection which becomes detrimental to their general motivation for reading, so that they do not often choose to read outside the school setting, which in turn means that they get less reading experience, etc. They get trapped in a vicious circle which becomes more and more difficult to brake out of.

Chapter 9

STUDENTS' SELF-DESCRIPTIONS AND THEIR IMAGES OF SCHOOL, LEISURE AND FUTURE

As was mentioned earlier, the interview started with questions about the student's self-image, which turned out to be a good opening for the rest of the interaction between researcher and student. Normally, there are not many opportunities in school for students to talk about themselves with adults, and it is probably not very common in these age-groups to talk with others about oneself, one's ideas, one's hopes for the future, or even one's position in the social environment. Quite a few of the students, at first, had obvious problems in finding the words to answer the questions about themselves. So, for instance, a spontaneous answer to the question *Are there any differences between you and others? (Q2)* was, in many cases, "None!", but further conversation usually revealed a rather clear awareness of the student's "ranking order" in the community (i.e., family, school-class and peer group).

Comparing oneself with siblings is not the same as comparing oneself with school-mates or friends or people in general, something that the students express quite clearly, thus demonstrating that they have a more varied view of their own personality than one may think. They also make distinctions between differences in general and differences in school, where performance level is the important point of comparison - it is in this respect that they demonstrate the most clear-cut awareness as to their own position. According to the social norms in our society it is not appropriate to describe oneself in very positive terms, instead one is expected to keep a low profile and give a more modest description of the positive side of one's personality. Such norms are internalised at a very early age, and this could be one reason for the students' laconic answers "There are no differences between me and others" or "All people are different, aren't they?". Nevertheless, most of my subjects tend to think that their friends have a rather positive opinion about them as persons.

As concerns school performance most of the good as well as the poor readers in my study seem to have no problems in placing themselves in categories such as "better than the others" or "not as good as the others". This holds true particularly for the older students, although some modify their statements a little by adding, "but it differs from one school-subject to another".

In general, the good readers seem more confident than the poor readers when answering questions about themselves, which was to be expected. The poor readers more often start by answering "I don't know", and they are more reluctant to give definite answers; but when it comes to evaluating themselves as students, there is no hesitation, they regard themselves as unsuccessful. Not surprisingly, they often add "because I have problems in reading", or "because I'm not interested". The good readers, on the other hand, often mention "learning comes easy to me" as a reason for their success in school.

In the following I will highlight some features of the answers to the questions in section A1 (Questions 1-12 in the interview, see App 1).

Q 1. What do you think that other people think about you as a person?

Being the first question in the interview, this is probably difficult to answer; 66 per cent of the students say they do not know or they have never thought about it. Apart from this, the most common answers are "that I'm nice" or "that I'm a good buddy". The same pattern appears in all four groups, and I have not found any systematic differences between girls and boys. Some students continue after their "I don't know"-answer to express, more specifically, what they think; this is more common among the good readers.

> I don't know what they think... maybe that I'm a bit queer. I've got other interests, I'm not interested in horses. (5G)
>
> I don't know, I think that they think I'm somewhat of a bookworm... (8G)
>
> I don't know....but I hope they like me. (8P)

Some have an answer ready at once:

> Well, that I'm a shy person, that I'm quite forward in some cases. Deep down I'm shy, but people think I'm forward, if they don't know me, that is ... That I'm nice, and my class-mates think that I know a lot, that I know almost everything. (8G)
>
> That differs from one person to the next. I don't have many buddies, at least not where I'm living. They think I'm a loner, but I don't care much, because I like being on my own. I don't like it in school when there is a lot of noise. Then it feels very nice to go outside and sit down somewhere quiet. (8P)
>
> They like me ... but not all ... I'm fighting a lot. (8P)

Very few of the students seem to think that other people have negative opinions of them as persons, and those who do express something negative usually gave some positive points as well, as if to compensate for it:

> Well ... perhaps that I'm quite tiresome sometimes, but I think I'm quite nice. (8G)
>
> A little rowdy from time to time, but quite nice. When I'm with friends I'm OK, they think. (5G)

Some of the students seem rather clear-sighted:

> I don't really know ... My best friend thinks I'm a good buddy. But sometimes I don't think twice before I say something silly, so she gets hurt. (5P)
>
> Don't know, it depends ... That I'm always happy, some think, and that I talk too much. (8G)

Q 2. Are there any differences between yourself and other people/your school-mates? What kind of differences?

Q 3. Have you got any brothers and sisters? Are there any differences between them and yourself? What kind of differences?

Most students understand this question as referring to personality rather than school achievements, and rightly so. About 60 per cent of all students answer "yes" to the first part of the question, but the younger ones seemed more convinced about it: "All people are different", "Everything in principle differs" (App 4:1). The same types of individual differences appear in all groups; they refer to personality, interest, aptitude, temper, etc. Only two students, one in each age group, have no siblings, and 17 out of the 53 that took part in the interview (i.e., one third) have at least two siblings. As concerns differences between themselves and their siblings, more of the poor readers than the good readers claim that there are none: "We think alike, we like the same things". In as much as they mention differences, these are of an external nature - differences in age, hair-colour, interests, "style", etc. But some students (mostly older and better readers) mention differences of a more qualitative nature:

> I have twin brothers. They are very untidy and rowdy, and they don't keep together the way they are supposed to. I'm much calmer. (8G)
>
> My sister is 20, and very different from me, but we spend a lot of time together, we are pals, actually. But as persons we are very different. She is much more down-to-earth than me. (8G)
>
> We are quite different. I have two younger brothers, one is quiet and clever, the other one is bothersome and thinks everything is boring, which I don't. So we are much different. (8G)
> My brother is older than me, 23. He has a good head for study, which I can't say that I have. (8G)

The next set of questions have to do with school performances, and they were not necessarily given in numerical order, as the interview in many cases developed into a conversation with the questions interwoven. Therefore, I will deal with some of the questions the way they turn out to be connected.

Q4. Is there anything in school that you think is difficult to learn?

Q6. What subjects do you find most difficult in school?

Q7. What makes those subjects most difficult?

In grade 5 the most difficult school subjects among the good readers are Maths and Swedish, among the poor readers Swedish (both reading and spelling) and English (pronunciation). The good readers in grade 8 have problems with German grammar, Sloyd and single items of Maths, whereas the poor readers in grade 8 mention subjects like English (both vocabulary and pronunciation) Social Studies and Swedish (reading and spelling) as causing most problems. (App 4:2)

In the younger group of good readers two out of the three who mention Swedish as difficult are immigrants and, consequently, Swedish is their second language. Because the curriculum in the higher grades is more diverse, the older students mention more of single subjects (e.g., English, Social studies, Swedish) as causing problems. However, it is obvious that school subjects which generally demand a good reading ability are regarded as difficult for the poor readers to a high degree, while the good readers often mention the more skills-oriented subjects (e.g., Maths, Sloyd, PE) as causing problems. The most pertinent exception to this "rule" is German which in the students' view has a rather complicated grammar, perhaps depending on the way it is taught. One of the students put it this way: "If someone says that German grammar is not difficult ... No, I just don't understand how that is possible." This exhibits a kind of difficulty quite different from the more basic one expressed by the poor readers in both age groups who are given a hard time in trying to manage English as well as Swedish.

German is far down on the poor readers' list, because very few poor readers choose German in seventh grade[1]. English, however, is a compulsory subject from grade 4 throughout school, and the poor reader's difficulties as regards English are yet another indication of their rather low language proficiency (see chapter 10 for results on WISC). This is also the most likely reason why fifth-grade poor readers mention English as difficult.

> English is difficult. I study like crazy, but still I don't remember anything during the test. (5P)
>
> The teacher sometimes explains things in English, and I don't always understand. (5P)

---

[1] German is introduced as an option in grade 7, along with other foreign languages (above all French) or programmes like handicraft, economy, citizenship, or specific local arrangements.

In the same way the older poor readers have a lot to say about English, which to them is the most difficult subject.

> English is worst, one is supposed to talk in English and the words are very difficult. (8P)
>
> A lot of words and such, and to put sentences together. It's not so much a question of understanding the words, it's more about how to put them together to make some sense. (8P)

Regardless of what subject that is mentioned as being the most difficult one; behind it all one can glimpse the reading problem:

> I have problems with reading. (*What kind of problems?*) I easily skip words so that I don't understand what I read, it makes no sense. If I don't understand a word I just skip it, and then I get into trouble. I don't like it ... but apart from that I'm quite okay at school. (5P)
>
> Social studies are difficult, and natural science. It's hard during lessons, and the text books are very difficult. (8P)

The kind of sloyd, or handicraft, referred to by some good readers, is textile and dress-making, which they find quite uninteresting. Admittedly, it could depend on the teacher, not on the subject *per se*, they claim. In general, it could be said that good readers rarely find theoretical subjects difficult, they would much rather label them "boring", and because they put no effort into learning these subjects, they become, in a sense, difficult.

> I don't normally have any problems in learning, but I'm very poor at technical things, like computers - I know nothing about that. I just sit and stare in front of me during lessons, because I understand nothing. (8G)
>
> Physics is a bit hard, I'm not really interested. (8G)

As a follow-up to these questions, the students were asked about other situations at school that they might find difficult. Most students answer no to this question, those who do not (mainly good readers in grade 8) mention situations like boring teachers, too long or too short lessons, too much spare time between lessons, being asked to do something in front of the class, too much talking in class, fights, violent school-mates, and exams.

Q5. Are your achievements at school different from those of your schoolmates? If so, in what way? In what subjects?

Only two students claim that they do not know how their achievements compare with others. The rest seem to have a rather clear view of their position in the class. Table 11 summarises the group differences.

Table 11. The students' conceptions of their own achievement level at school as compared to that of their mates (absolute frequency)

	Better	**The same**	**Less well**	**Depends on subj.**	**Don't know**
Gr 5G	5	5	1	0	1
Gr 5P	0	5	3	2	0
Gr 8G	7	3	0	3	0
Gr 8P	1	2	9	5	1

As can be seen in the table the older students place themselves according to what could be expected - good readers quite often regard themselves as high achievers, poor readers as low achievers or in the "depends on subject"-category. Among younger students the picture is not that clear - the good readers think that they perform either better or on the same level as their mates, whereas the poor readers think they perform equally or less well. Again, it seems that the good readers are more confident about their achievements, but also the poor readers seem to be well aware of their position, a result quite in line with what was said earlier in this chapter. The poor readers know quite as well as the good readers that school performance is an important part of a person's image.

The one good reader in grade 5 who claims that she performs less well, gives a reason for this: she is a slow writer. The good readers mention languages, natural science, social studies and maths as subjects where they perform better than their mates, very much the same subjects that cause the poor readers problems. On the other hand, those poor readers who say they are good at something usually mention maths, drawing and physical education/ gymnastics, the very same subjects that are mentioned as problematic by the good readers. It is worth noting the position of maths in this context: good readers who often are regarded as generally successful students by their teachers find maths a difficult subject, whereas the poor readers do not, at least not to the same extent. Six out of ten poor readers in grade 5 and eight out of eighteen in grade 8 mention their reading problems in this context.

> I have problems with my reading. I find it very difficult to read books. (5P)
>
> I have problems with English. Our teacher explains things in English and I don't always understand. And then I have my reading problem. I have something wrong with my vision. Once they gave me a pad over one eye; they were supposed to operate, but they decided not to, after all ... So I want to take my time when I'm doing something. (5P)

> The problem is, I can't read very well - it's hard to get the hang of it. (8P)
>
> It's so hard to learn, in social studies, for instance, so much to read, lots of dates ... I just get them mixed up. And all this copying to do, it's just too much. (8P)

These students claim, for instance, that their vocabulary is poor, that the textbooks are very difficult to read, that there is too much to memorise, that they do not read fast enough, that they cannot spell, or that they find it hard to understand what they read. The assumption that the poor readers have a rather realistic view of their abilities and difficulties is not far-fetched.

Q8. What situations outside school are most difficult?

Not many of the students are able to give any examples of situations that they find hard to handle. Those who do give a variety of examples, like being alone in the house, having no friends, quarrelling with parents about times and rules, being with animals like cats, doing homework, getting scolded by mother for truency, buying clothes, and being in smoky places.

Q10. What are you doing best of all?

This question was intended to encircle life in school as well as outside, but most students interpreted it automatically as referring to school. So, they usually started by mentioning a school subject, in which case they were asked if there is anything outside the school context that they are even better at (App 4:3).

Among school activities the good readers most often mention languages as something they are good at, whereas the poor readers mention languages last; instead they find themselves best at physical education and mathematics. Maths, on the other hand, is ranked quite low on the list for the good readers - somewhat surprising, as it is a known fact that most skilled readers are successful in all subjects. However, in this case it seems as if the sampling method has favoured students with a special talent for languages. And after all, the question is: What are you doing best of all? As for out-of-school activities, regardless of achievement level several boys claim that they are best at football, whereas girls have a propensity for activities like horse riding, music and drawing. There seems to be a tendency for grade 8 good readers to mention more school-based activities and for the poor readers to mention more out-of-school activities, sports in particular, as their "best choice".

Q11. What particular interests do you have? What are you usually doing in your spare time?

It is rather natural that the answers to this question would much resemble the answers to the previous question - the more interested you are in an activity, the better your performance will be in that activity, and vice versa. That goes for school as well as leisure. Nevertheless, there is a large variety of activities here that are not mentioned in the responses to the previous question (App 4:4).

In this array of leisure activities sports are by far the most salient ones in all groups, football in particular, but also other ball games seem to be popular. Computers have a less prominent position than one could expect, even if it is mentioned by a few students. Music is in fact a stronger candidate for second place on the list, although it does not appear at all among the favourites for poor readers in grade 8. The differences between the groups are by no means striking, but pastime reading, for instance, is mentioned only by good readers. The poor grade 8 readers seem to spend more time together with friends than the other groups.

Q12. What are your plans for the future?

The most immediate plan for a grade 8 student of today would be to enter upper secondary school, to which they will submit their application in grade 9. Most of the students in this study seem to have decided already what programme they would choose. There is, however, a clear difference between the good and the poor readers in this respect - the poor readers are less decisive, both about their continuing school programme and about their future career. The successful students in grade 8 have rather definite plans, they are heading for university studies, whereas the less successful students seem to opt for manual work. The 5-graders have their future so far ahead of them that their career plans, naturally, are quite unrealistic; they want to become anything from farmer or professional footballer to prime-minister (App 4:5).

> (*What are your plans for the future?*) I want to become prime-minister. (*So you're interested in politics?*) No, but I want to do something to stop pollution of our environment. (*Do you belong to any organisation then?*) No. (*Before you become prime-minister what would you like to do?*) I never thought of that. (5G, girl)
>
> You mean like jobs and that? Well, that differs from time to time....I would like to work at a zoo ... with animals, sometimes I want to become a hairdresser, and sometimes a fashion-model, an ... well there are lots of things. (5P, girl)
>
> I want to be as good as I can at football and handball, play abroad and that ... But first I have to concentrate on school, so I can get into a sports college, like in Stockholm or Gothenburg. I wouldn't mind living there alone. (5G, boy)

It is quite obvious that career plans are still very traditional, in that girls tend to choose care taking jobs, whereas boys opt for technical jobs, despite strong efforts in later years to change this trend. This seems especially true among the less successful students. Almost half of the poor readers either start their answer with "don't know", or say that they have no plans, or answer "just get a job". Some even express a sense of failure: "I have to do something, I don't know what", "...if I can make it, my marks are low", "I'll take it as it comes".

Self-description

During that section of the interview which dealt with their self-concepts the students were asked to try and make a description of their personality (*Q9 Try to make a description of yourself ... as a person!*). This turned out to be quite a difficult task. Several students at first interpreted the task as "make a description of your appearance", but after clarification all students responded. Some descriptions are rather short and "meagre", others more elaborated. Quite in line with what is demonstrated in other parts of this study, the most elaborate and significant responses are given by the good readers in grade 8, and the students most prone to start their answers with "don't know" are the poor readers in grade 8. However, after receiving some additional questions they are all able to give some kind of self-description.

Three students describe their exterior only, and four describe activities they are involved in rather than any of their traits, nine students mention both characteristics and activities, and the rest (70 per cent) try to describe their personal characteristics. Below are some examples, one from each of the subgroups.

> I'm short, I have brown hair and green eyes, I'm not very fat. (*But how are you inside?*) How I look inside? ... Don't know ... Happy, sometimes, also sad. Talkative, I talk a lot at school, so my teacher has to tell me to be quiet. I'm lively. (5G, boy)
>
> My heart is as big as anybody's, I mean I'm quite as nice as others. Happy most of the time. When we are visiting people, my little sister often gets irritable, then I make some jokes. So people say that I'm always happy. But I'm not always happy. I'm talkative but shy at the same time, if there is anyone I haven't met before. Otherwise I can talk about anything. (5G, girl)
>
> A bit silly sometimes ... I can get very angry at home. I'm stubborn and talkative, and I always want some movement around me. (5P, boy)
>
> I laugh a lot, ... at everything ... Not very talkative, I don't mind listening to others. I'm quite lively. (5P, girl)
>
> I don't know what to say ... I think I'm more or less like everyone else. Maybe I have less friends ... I spend much time at home. I think I'm not specially serious, more cheerful. And then I'm day-dreaming a lot. I think I'm quite good-humoured and positive. Sometimes talkative... sometimes I can't find a single word to say and at other times I don't know how to stop. (*Are you lively or quiet?*) That depends on who I'm with ... I've got a buddy - he's moved now, lives in Malmö...Anyway, with him I could do almost anything, I mean with

> that sort of friends ... and at the same time with my grandpa - I spend a lot of time with him - well, with him I'm rather quiet. (8G, boy)
>
> I feel quite happy most of the time, but not always, of course. Right now I think almost everything is great fun. I've got a lot of friends and I don't normally feel lonely. I'm enjoying myself. Maybe I wonder sometimes what will happen next, how things will be in the future. Of course, sometimes one wonders what will happen to our world ... but it's not anything I'm thinking about every day. But if you start talking about, then one can't help worrying a bit. (8G, girl)
>
> ... No, I can't do that ... (*Are you a cheerful sort?*) Tired, rather... (*Are you silent or talkative?*) Both. I talk a bit and sometimes I'm silent. (*Are you lively or quiet?*) I stay put most of the time ... in school, that is, but at home I'm running around. (8P, boy)
>
> ... No, I don't know where to start ... (*Are you cheerful or sad?*) Quite happy, I think. (*Do you reflect on things?*) Happens, sometimes ... (*Are you quiet?*) Only in school, I don't know why ... perhaps because I'm shy. (*So you're not very lively?*) No. (8P, girl)

Although it is difficult to extract any specific tendencies from the responses, it can be said that the good readers in general seem to have a rather positive self-image. Very few gave any reference to school in this context: four of the good readers say that they are successful in school or that "learning comes easy" to them; two of the poor readers mention as one of their characteristics that they "dislike school" or "don't like to read for any length of time". It goes without saying that the older students use a more varied vocabulary in describing themselves. The adjectives (or other modifiers) most commonly used in the descriptions for each group are found in table 12.

Table 12. The most common modifiers in the students' self-descriptions, in order of frequency

Gr 5G	**Gr 5P**	**Gr 8G**	**Gr 8P**
cheerful	cheerful	cheerful	silent
talkative	talkative	shy	calm
nice		calm	cheerful
lively		talkative	shy
		bookworm	
		athletic	
		varying	

As can be noted, the differences are by no means striking. Among the younger students the most common modifiers are the same in both groups; also further down the list, a few of the poor readers regard themselves as *nice*; some in both groups are *moody*, but only poor readers are *shy*. Among the older students there are some differences: the good readers are mostly *cheerful* or *shy*, while the poor readers are either *silent* or *calm*. There are *bookworms* only among the good readers, and *sporty* types only among the poor readers, according to these descriptions. Some good readers describe themselves as *honest, forward, music lovers, normal* or *moody*, whereas the poor readers regard themselves as *nice*, *varying, talkative* or *small*.

Self-image - concluding remarks

Being asked to give a description of yourself is a task that most students are unfamiliar with, but as it turned out the task was not impossible to accomplish. Many of my subjects seem to have a rather clear view of themselves, especially pertaining to their position on the performance scale in school. Those regarded as good readers (and for the most part also regarded as high-achievers in general) by their teachers are well aware of their favourable position but do not always want to admit it. Instead many of them say they are "normal" in these respects, or "others say I do well in school"; or they may excuse themselves by saying "learning comes easy to me". In grade 5 the poor readers have not yet encountered so many of the problems that are connected with their reading difficulties. They have not given up the struggle; they are still *talkative* and *cheerful*. In grade 5 the students have the same teacher in nearly all subjects, a person who is familiar with their problems and knows how to assist them. The grade 8 poor readers, on the other hand, have a less positive image of themselves. Through their earlier experiences, especially in grades 7 and 8 - with a more complex structure and a subject teacher system, as opposed to the earlier grades - they have learned that they will never be successful in school. They know that their achievements are low; they often regard themselves as *silent* and *quiet*. "At least in school", some of them add. This result goes well with what was presented in chapter 5 about the students' descriptions of their learning - they seem to be running two parallel lives, one in school and one outside school.

As for their ability to actually describe their personality, it is clear that the older students in general give a more distinctive and variable picture of themselves as persons, which is not surprising. The same goes for the way they answer the self-awareness questions in the interview, as has been exhibited in this chapter. An overall judgement of all responses in this section for each individual shows that the most expressive self-descriptions are given by some good readers in grade 8. The overall judgements were based on all answers to the questions in the self-image section of the interview. These answers were compiled to form a continual "story" for each individual. The "stories" were then judged in terms of general content and expressiveness, and an estimation was thus made of each individual's overall self-awareness. Each story was given a verbal judgement from *low* to *high*. Two judges (JI and JII) read and assessed the stories independently. The verbal judgements were also assigned a number from 1 (*low*) to 5 (*high*), and mean scores were calculated, thus yielding a simple measure of interrater agreement (table 13).

Table 13. Estimated general "self-description level" (absolute frequency)

	Gr 5G		**Gr 5P**		**Gr 8G**		**Gr 8P**	
	JI	*JII*	*JI*	*JII*	*JI*	*JII*	*JI*	*JII*
Low	0	0	0	0	0	0	5	1
Fairly low	5	3	6	4	2	1	7	12
Average	3	5	1	4	2	10	4	4
Fairly high	3	2	3	2	6	1	2	1
High	0	1	0	0	3	1	0	0
Mean scores	*2.8*	*3.1*	*2.7*	*2.8*	*3.8*	*3.2*	*2.2*	*2.3*

There is a slight tendency to the effect that the more skilled readers have a higher level of self-awareness, as expressed in their self-descriptions. Especially the older and better readers express themselves with more ease, which is an indication of their relative self-confidence and superior language ability. Among the poor readers the tendency is reverse - with a few exceptions most students demonstrate fairly low levels of self-awareness. These tendencies are more pronounced among the older students, although there are exceptions as well. The two judges seem to be more in agreement about the poor readers than about the good readers, as can be seen in the differences in mean scores between the judgements (overall interrater agreement was r= .71).

The general picture of students' self-concepts in this study corresponds well with that of other studies in the same area. Taube (1988) made a rather comprehensive, longitudinal study of reading acquisition and self-concept, where she found significant and even reciprocal causal correlations between the two entities. The "vicious" and the "good" circles of learning were described in her investigation, and the same pattern seems to emerge in my study. One of Taube's results was that students with persisting learning problems have a lower self-concept, lower aspirations and expectations for the future, and were less inclined to involve themselves in reading activities or to find school an important part of their lives. Although using different investigatory methods, my study seems to corroborate her findings.

In my study I have not made any specific distinctions between concepts like self-awareness, self-concept, self-confidence, self-esteem, self-evaluation, self-image etc. For a detailed discussion of these concepts, I refer to Taube (1988). The self-image section of the interview in my study was mainly intended to shed some light on the different components of good versus poor reading ability, as several earlier studies have shown a rather strong relationship between reading ability and overall school achievement (Applebee, Langer & Mullis, 1988, Dalby et al, 1983, Grundin, 1977, Malmquist, 1974, Rutkowiak, 1992). It is evident that this relationship grows stronger with age and experience, with detrimental effects for the poor readers and their self-image, unless something is done in school to break the vicious circle.

Chapter 10

STUDENTS' COGNITIVE ABILITIES RELATED TO READING

Cognitive competence

The subjects were chosen by means of two criteria, teacher ratings of reading ability and results on a reading comprehension test (cloze test, LT; Grundin, 1975,1977). Complete data in this respect are only obtained for the main test group, the members of which all came from the same school district (chapter 4). In 5th grade 109 students in five classes were tested, in 8th grade 155 students in six classes. Those students who were rated low on both criteria were selected as "poor readers" in the study, and those who were rated high as "good readers", 43 students in all. Other cognitive abilities described in this chapter are verbal intelligence (WISC subtests Analogies and Antonyms), memory (Lexical Access and Working Memory) and reading speed. As mentioned before, the ten grade 8-students who took part in the interview study only, are excluded from this part of the thesis, as their data are not complete.

Cloze test. The mean scores on the cloze test differed between the classes (in grade 5: 17.6 - 28.8; in grade 8: 27.2 - 31.3) with an average of 23.6 in grade 5 and 30.7 in grade 8, to be compared with mean scores for the same age-groups in the Grundin 1975-study (grade 5: 24.4; grade 8: 28.8). The scores of the sampled subgroups are shown in table 14.

Table 14. - Mean scores of the samples compared with mean scores of population and the Grundin study

	Sampled groups **Poor**	 **Good**	**Population** **Mean score**	**Grundin study**
Grade 5	11.4 (n=10)	30.7 (n=12)	23.6 (n=109)	24.4 (n=250)
Grade 8	20.4 (n=12)	36.6 (n= 9)	30.7 (n=155)	28.8 (n=188)

As can be seen in the table the selected groups differ substantially from the average in the two grades regarding scores on the comprehension test, quite in line with the intentions of the study.

The teachers were asked to select the five best and the five poorest readers in their classes, but not to rank them in order of achievement level, which some teachers clearly pointed out that they had not done. A closer look at the teacher ratings reveals that approximately 41 per cent of the ratings in each grade do not coincide with good or poor results on the comprehension test:

Grade 5
11 of 24 ranked as "good" did not score among the 5 best (46 per cent)
8 of 22 ranked as "poor" did not score among the 5 poorest (36 per cent)

Grade 8
12 of 30 ranked as "good" did not score among the 5 best (40 per cent)
12 of 28 ranked as "poor" did not score among the 5 poorest (43 per cent)

in their respective classes.

This is the main reason why the finally studied group is comparatively small (table 3), i.e., only those who met the requirements of being high or low on both criteria were selected. Because of the variation in test scores between classes, some of the finally selected students may not have belonged to this group had they been in another class. Taking into account the experience of the teachers and the fact that almost 60 per cent of the cases met both requirements the evidence of the selected groups' achievement level, as good or poor readers, seems rather conclusive. A comparison between the teacher ranked groups' test scores (TRG) on the cloze test, the high/low scorers on the cloze test (HLS), and the test scores of the finally studied group (SG) yields the results outlined in table 15.

Table 15. Cloze test scores for teacher ranked groups (TRG), high/low scorers (HLS), finally studied group (SG)

	TRG	HLS	SG
Gr 5 Good	28.5	30.7	30.7
Gr 5 Poor	15.8	13.3	11.4
Gr 8 Good	34.0	35.2	36.3
Gr 8 Poor	23.8	21.0	20.4

It is only among the good readers in grade 5 that the test scores for the highest scorers on the test and the selected group are the same, which may indicate that we did not get the very best readers in that group.

Verbal skills. Two of the subtests from the Swedish version of WISC (Wechsler Intelligence Scales for Children) were used to study verbal competence of the selected students. The subtests were *Analogies* and *Antonyms*.

Examples:
Analogies: Driver - car. (Two of the following words relate to each other in the same way as driver and car) trot, riding, horse, ride, jockey. (Total: 27 items)

Antonyms: (Two of the following words are antonyms) beautiful, old, sad, quick, young. (Total: 29 items)

The standard norms are calculated for boys and girls separately, which makes comparisons in this case extremely hazardous, as the groups become even smaller broken down by age, reading level, and gender. The tests were given one year after the interview; hence, the norms given in table 16 are for grades 6 and 9, respectively. It should be noted, though, that the investigated group will be referred to as grade 5 and grade 8 throughout the study.

Table 16. Results on Analogies and Antonyms subtests of WISC

Analogies Grade 5	**All**	**Good**	**Poor**	**Norms (grade 6)**
Girls	10.15	13.63	5.80	10.19
Boys	11.00	11.00	11.00	10.34
All	10.74	12.91	7.75	
Grade 8				
Girls	14.40	19.40	8.25	15.52
Boys	13.27	19.50	7.71	15.41
All	13.80	19.44	9.18	
Antonyms Grade 5	**All**	**Good**	**Poor**	**Norms (grade 9)**
Girls	10.15	11.62	7.80	9.79
Boys	10.67	11.67	9.67	10.06
All	10.32	11.64	8.50	
Grade 8	**All**	**Good**	**Poor**	**Norms**
Girls	11.78	16.20	6.25	14.71
Boys	12.09	18.00	8.71	14.60
All	11.95	17.00	7.82	

In grade 5/6 the girls alone answer for all the difference between good and poor readers. Apart from this the results are rather close to the norm, which is not the case in grade 8/9. On both subtests this group as a whole performs less well than the norms; in fact they perform on grade 8-level on the Analogies-test and on grade 7-level on the Antonyms-test. It would be beyond the scope of this thesis, however, to speculate about possible reasons for this. Suffice it to say - again - that the groups are small.

Nevertheless, with one exception (boys in grade 5) there are clear differences also in this respect between the good and the poor readers, and, again, the differences are more pronounced in grade 8 than in grade 5.

Memory tests.
Two tests from the TIPS (Text Information Processing System) test battery were used (Ausmeel, 1988) - Lexical Access and Working Memory. Their functions are described in chapter 4.

Lexical Access. The task was to decide whether a three letter string shown on the computer screen was a word or not. Answers for words and non-words were registered, as well as reaction time. The results for good and poor readers in each grade are shown in table 17.

Table 17. Lexical Access, scores (amount correct) for Words (W) and Non-Words (NW), mean reaction time (Rt, sec.) Total no of items: 50 W + 50 NW

	W	**NW**	**Rt sec**	**Rt W**	**Rt NW**
Gr 5 Good	38.7	46.7	.88	.88	.88
Poor	29.5	42.0	1.12	1.14	1.10
Gr 8 Good	43.0	47.9	.80	.79	.81
Poor	37.8	40.4	.98	.98	.98

This is a test where linguistic experience plays a relatively important role, experience with words and with decoding. Even the poor readers in grade 8 had a faster reaction time and were more proficient in deciding that a string of letters was a real word, as compared to grade 5 students. On the other hand, they seemed to be more uncertain in deciding about non-words, something that the good readers in both age groups were very good at. The within-grade differences between good and poor readers in reaction time are evident, with small variations, if any, for words and non-words.

Working Memory. This test contains a multiple memory task, in that one has to decide whether a presented sentence makes sense or not, retain the last word in an increasing number of sentences in a set of 3 - 6, and then recall the last words in order of presentation. Test results are presented in table 18.

Table 18. Working memory; correct sensible/nonsense sentences (S/N), number of recalled last words (RLW), and number of recalled last words in correct serial order (RCSO). Total no of items: 54

		S/N	**RLW**	**% of Tot**	**RCSO**	**% of RLW**
Gr 5	Good	52.5	31.0	57	29.9	83
	Poor	49.3	20.4	38	15.0	74
Gr 8	Good	51.9	34.9	65	29.2	84
	Poor	50.8	20.6	38	14.6	71

Also on this test the good readers performed better than the poor readers in both age groups. There is not much of a difference between the poor readers in grades 5 and 8, but the good readers in grade 8 recalled more last words than those in grade 5 (RLW). The difference between the two groups of good readers is small as concerns the relative number of words that are recalled in correct serial order (% of RLW), whereas the poor readers in grade 5 performed slightly better than their older counterparts in this respect.

Reading speed.

During the interview-and-silent-reading session (see chapter 4 for a description of the procedure) the students' reading time was measured by means of a stop-watch. Reading speed was then converted to *words per minute* to make it comparable between texts, as the texts were not of equal length. In table 19 average reading speeds for the three texts are presented.

The general pattern is that reading speed is highest for text 3 and lowest for text 1, with one exception - the poor readers in grade 5 demonstrate the highest speed for text 2. There are two likely explanations for this; a) text 2 has the lowest readability count of the three (LIX=20) and is regarded as "easy to read" by most students; b) it is a text type with which these students are quite familiar: the contents are factual but the author uses a rather uncomplicated explanatory form, almost a story-telling technique, and simple vocabulary.

Table 19. Average reading speed for texts 1, 2 and 3; words per minute

	Text 1	Text 2	Text 3
Gr 5 Good	199	249	252
Poor	192	203	183
Gr 8 Good	245	310	338
Poor	172	189	193

The poor readers in grade 5 differ from the other groups in yet another mode - their reading speed for text 3 is slower than for the other two texts. Text 3 is the longest text and the poor readers get easily tired and distracted[1], which was also observed by the researcher during the reading session. Furthermore, two students in this group, and one of the poor readers in grade 8, read text 1 faster than the other texts. When asked about how difficult they found the texts all three claimed that they thought text 3 was the easiest to read, although it took them relatively longer to read (which they were not aware of); and they found text 1 and 2 equally difficult, because they both contain facts, which a story like the one in text 3 does not. So, their conception is: reading a story is more enjoyable than reading facts; therefore, it feels easier and faster. This would actually be true for good readers, but for many poor readers the opposite often is the case: the longer the text, the slower the speed, regardless of the contents.

Reading speed is often said to be an indication of general reading ability and comprehension, and there is substantial evidence to the effect that reading speed and comprehension are related, i.e., slow readers are often poor comprehenders (Malmquist, 1977, Lundberg, 1981). The results of the present study are pointing in the same direction. However, the skilled and more experienced readers in grade 8 demonstrated their superior skills not only by reading speed *per se* but also by their ability to adapt reading speed to text type (chapter 6). This adaptivity is, to a lesser extent, also visible among good readers in grade 5 and among poor readers in grade 8.

In these three groups the difference in reading speed is largest between texts 1 and 2 (again poor grade 5-readers are the exceptions), indicating that text 1 actually is the most difficult one to read. When asked to compare the texts, this is exactly what most students claim: text 1 is more difficult than the other two, because it contains so many facts to memorise.

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[1] Text 3 yielded the fastest and the slowest reading time - 653 w/m (grade 8 good reader) as against 90 w/m (grade 5 poor reader), which means that the first student took 1 min 29 sec to read the text, and the second took 10 min 43 sec to read the same text; the first student made a detailed account of the story in the recall session, the other recalled a few isolated items.

All in all, between-subjects deviations are very large as concerns reading speed. Even if all subjects were doing their best to fulfil the tasks given to them, the fact that the sessions took place in schools with the ensuing pros and cons (including disturbances, few as they may have been) could have influenced the individuals in various ways. To avoid that any one text would "suffer" from the subject's exhaustion, the order of presentation was varied. In five cases the students' "speed order" turned out to be the same as the "presentation order", and in six more cases the first presented text was read with the highest speed. Only in one of these cases text 1 was the fastest read text. This means that in 20 per cent of the cases, order of presentation could have influenced reading speed.

Concluding remarks

In order to study what constitutes poor versus good reading comprehension ability it was necessary to ascertain the initial differences between poor and good readers as defined by teacher ratings and scores on a reading comprehension test. Apart from reading comprehension the cognitive functions studied were verbal intelligence (analogies and antonyms), memory (lexical access and working memory) and reading speed. It seems that the verbal tests tap linguistic abilities that are crucial to reading comprehension, as the differences between poor and good readers are substantial in this respect. The differences in working memory functions between the two groups within each grade level are equally convincing. Not surprising, the poor readers in this study are slow readers as well as poor comprehenders. Together with the low scores on the lexical access test this could indicate that their decoding ability is impaired, or at least not automatised. Decoding ability, however, has not been further studied in the present work. Judging from the variation in reading time for different texts exhibited by the good readers, it seems that this group of students have a skill that is missing among the poor readers - they know how to adapt their reading speed according to the type of text they are reading (chapters 6-8).

Chapter 11

PORTRAITS OF GOOD AND POOR READERS

What constitutes "good" and "poor" reading?

After having scrutinised 53 interviews it would be easy for me to claim that there are 53 different cases - no two individuals are alike. The four cases above testify to this. By definition they are "good" or "poor" readers, or rather comprehenders, but none of them fully demonstrate the alleged "typical" behaviours of these groups (decoding causes less of a problem, since the differences are more obvious). Nevertheless, there are similarities and dissimilarities between the groups, as has been demonstrated earlier on in this thesis. In general terms, teachers' long time experience have taught us that there are certain aspects of reading ability, apart from decoding, where differences in proficiency are noticeable. These differences seem to be in the metacognitive as well as the cognitive domain. For instance, poor readers often fail to detect errors or flaws in the text - they tend to believe that comprehension problems are caused solely by themselves (Garner, 1987). Poor readers also possess a more limited repertoire of strategies than good readers (Lundberg, 1984, Malmquist, 1974). Varying reading speed according to text (for instance, spend more time and effort on difficult passages), evaluating reading results and text difficulty, using different ways to remedy comprehension failure (ask someone, look up words in dictionary, use context, etc.) are strategies mostly found among good readers, whereas poor readers do not vary speed, or evaluate their performance; they allot the same amount of time and effort to all passages (or leave it to chance), and they may use - or at least mention - strategies such as reread passages, skip words they do not understand, or stop reading.

Several attempts have been made to establish the nature of the differences between good and poor comprehenders. Oakhill et al (1988) found no general differences in memory capacity between good and poor comprehenders, but good readers were superior to poor readers in inference making and integration of text elements, thus indicating a more efficient working memory function. Some studies by Bransford and his colleagues (e.g., Bransford, Vye & Stein, 1984) have reached similar results: there seems to be no general memory deficit that restrains poor readers' learning ability. McConnaughy (1985) found that good and poor readers were equal in schema organisation when presented with familiar text material with a predictable structure, such as stories. However, differences were found in quantity of recall - good readers recalled more propositions. The author suggested this could be the result of a poorer language production ability. In a summarisation task both performance groups emphasised explicit rather than implicit information as being important, thus indicating that proper organisation of text material can enhance poor readers' comprehension.

Taylor (1985) investigated the importance of prior content knowledge to comprehension and recall of text. She found that, contrary to earlier beliefs, poor as well as good readers use prior knowledge when processing text. This would suggest that poor readers do not exclusively use text-based processing but are also dependent on schema-based strategies to comprehend and recall text, i.e., "prior knowledge is used by readers whenever possible to process and recall text" (ibid., p. 498). Regardless of performance level reading of a text is more efficient when the topic is familiar, although it is true that poor readers encounter greater problems with unfamiliar texts than good readers.

August, Flavell and Clift (1984) studied the differences in comprehension monitoring between skilled and less skilled readers, in this case matched for intelligence and decoding skills. Their fifth-grade students read five short stories, some of which had a missing page, and were asked four questions after each story about this missing page. As in the earlier mentioned studies, no significant differences were found in gist recall, but there were a number of other differences; e.g., skilled readers spent more time on the inconsistent stories than the less skilled readers, they slowed down more at the inconsistency, and they reported more often on the missing page. The skilled readers also made more correct inferences about the missing information. August et al suggested that some less skilled readers fail to integrate or construct information in the text well enough to detect problems, while others may unconsciously detect the problem but fail to report it - they are not aware of their non comprehension

Goelman (1982) studied selective attention in reading or listening to expository and narrative texts among good, average and poor readers in grade 4. Factual short answer questions generated from the texts were used either as pre-questions or post-test questions. The children were to either read the texts or listen to them, the experimental group received prequestions, the controls did not. There were no significant main effects for reading level and modality (reading or listening). The prequestion group scored higher than the control group on every reading level, although for the poor readers there was no difference in selectivity between experimental and control group (i.e., the e-group poor readers scored correct randomly on prequestions or post-test questions). Selectivity scores were higher after expository than after narrative texts. Prequestions seem to have a good general effect on recall at all reading levels, but as concerns selectivity (the ability to intentionally direct one's attention to specific sets of information in a text) the effect is restricted to higher ability groups. Nevertheless, this is a promising result, according to Goelman (1982), because it shows that poor readers can benefit from prequestions in that they raise their level of attention and facilitate overall comprehension and recall of a text.

Various studies of successful and less successful learners (in this case readers) led Bransford et al (1984) to conclude that there are some universal principles of learning, f.ex. precision, that affect students at any performance level. They had noticed, 1) that unsuccessful learners often have a rather passive and mechanical approach to learning, such as rereading a passage by routine; 2) that they have difficulties in assessing their current level of mastery, such as being ready or not for a test; 3) that they are unable to make information easier to understand by for instance integrating information from other parts of the text; 4) that they do not seem to know how to study selectively; 5) that they can not judge the difficulty of the learning material; and 6) that they exhibit a lack of content knowledge, often due to their less efficient study techniques. Thus, they fail to use their potential. Bransford et al (1984) undertook what they called "precision training" with a group of fifth-graders who were either successful or less successful learners. The students were taught to combine information from previous parts of the text; to activate potentially available knowledge; to analyse what makes some information so difficult to retain; and to produce precise elaborations of text fragments (or implicit text). They obtained very promising results, especially in two aspects: "1) that students begin to understand why some materials are harder to learn and remember than others; and 2) that they begin to realise that they have some control over their own comprehension and memory processes." (ibid., p. 227).

After having gone through a substantial amount of research in the area, Garner (1987) concludes that poor readers have "important knowledge gaps and misconceptions about critical cognitive activities" (ibid., p. 39). She also claims, that some of these knowledge problems may be caused by the students' experiences in school. Like Brown (1985) Garner contends, that good and poor readers are treated differently in school. The good readers get more meaning-emphasis instruction and more reading time in school. Furthermore, some school texts cause unnecessary confusion's because they are not sufficiently coherent or adequately structured. The problems with "poor" texts causing "poor" reading are further addressed by, for instance, Bransford et al (1984) and Duffy, Higgins, Mehlenbacher, Cochran, Wallace, Hill, Haugen, McCaffrey, Burnett, Sloane and Smith (1989). The latter propound more careful preparations of instructional texts according to "rhetorical principles in naturally occurring texts" (ibid., p. 455) to avoid some of these problems.

Four cases of good and poor reading

So far in my thesis, I have tried to demonstrate the differences between good and poor readers as groups. To complete the picture it may be worthwhile to look closely at a few individual cases. It goes without saying that all individuals I have worked with are different, although they have certain traits in common. Consequently, it was not easy to pick out the individuals for this section - there simply are no "typical cases". I have not used random sampling, rather I have chosen the individuals with the very highest and the very lowest scores on the comprehension test in each of the subgroups - with one exception: poor readers in grade 5. The lowest scorer is an immigrant student; although he speaks Swedish without a foreign accent, Swedish is not his mother-tongue and, in his case, there is reason to believe that he has a limited vocabulary which may have influenced his scores on the comprehension test. I therefore decided to use Aron, who scored 2 points higher than the first mentioned boy, still a very low score. It should also be mentioned that the two good readers were ranked on top by their respective teachers, and the two poor readers were ranked at the bottom in their classes. I could have chosen other cases - I chose these to represent a selection of good and poor readers in grades 5 and 8 in the Swedish school. They will give testimony as to what it entails to be a skilled or a less skilled reader.

There are three boys and one girl in this selection of cases. It is a coincidence. On the other hand, in grade 5 in my material girls are overrepresented among the good readers, and in grade 8 the boys are overrepresented among the poor readers. In this sense the selection is representative. I have chosen a narrative form for these portrays, and they are based on the students' own words to a large extent. However, the reader will find that I sometimes go out of the picture to comment on what is said, or to give additional information. I hope this is not confusing.

Case 1

Kate is 12 years old. Her teacher regards her as the best reader in her grade 5 class, and she had the highest scores on the comprehension test administered to the whole class (chapter 10). She scored 36 out of 41 points. She loves horses and other animals and spends some time around the stables. She also plays the flute. When she grows up she would like to work in a zoo or become a singer. Her mood varies, she claims, and at school she works more slowly than her mates. The only thing she may have problems with at school is maths, and her best subject is English. Kate was reading already when she first went to school. Her mother taught her the letters while they were playing with wooden blocks with letters painted on them, and they constructed words together. It is fun to read, says Kate, and you can also learn a lot by reading. Kate knows that she understands almost everything she reads, because she remembers it afterwards. In case she does not understand, she asks her mother or her teacher, or else she tries to read it over again. Her conception of reading is that she just looks at the words and then she knows, she does not have to blend together. Her favourite books are thrillers and sometimes "everyday" stories, and she usually recollects the funny and the sad parts of a book, together with the overall sequence of the story. Kate likes to read in her spare time, she reads almost every day, maybe two, three books a week.

Kate did not enjoy very much the folk-tale about the squire who wanted to marry the young girl. She thought it was childish. However, she gave me a long and very detailed immediate recall of the text, well organised and with all events in the right order, and finished like this:

> It is said that it was the best bride the squire could have wished for, so he never went out courting again.

She said it was a "humorous" text and labelled it "the wedding". It was easy to read, because it was short and almost at once she could predict what was going to happen. There were a few words she was not sure about the meaning of, and she mentioned them. The moral of the text was "you cannot force anyone to do something she doesn't want to do", and the girl showed that by fooling everyone. In our "conversation" about the content we reached the end of the story:

> *(What does the last sentence mean: 'And the squire was so pleased with his bride that he never went out courting again'?)* He liked that bride, so he never went out courting again, never tried to get anyone else. *(So he married the horse?)* Yes. *(Well, who knows ... we never get to know exactly how it ends, we have to guess ... Do you think the vicar agreed to marry them?)* Yes. The vicar can't decide who is to marry who. *(On the other hand, I don't quite see what's the use of having a horse for a wife ...)* Well, you can ride it, can't you!

At one stage I thought I may have misunderstood Kate, but she confirmed her interpretation:

> *(How well do you think you will remember this story in a couple of weeks?)* The main points of it, that the squire wanted to marry a poor girl but married a horse instead.

Kate's second text was text 2 about the sun and the earth. In her recall she made an almost perfect summary of the text, and this was a text more to her liking. Were she to choose between texts 3 and 2 she would choose text 2. This is a text you learn from, she claimed, it contains facts, and it's interesting. She learned nothing new, because she knew most of the content before. It was easy to read, but she could imagine that it would be difficult for those who did not know anything about it. Kate had her own explanation as to why people used to believe that the sun moved while the earth was immobile:

> Because they didn't think that you could be upside down. If the earth was spinning then you would be upside down and that was not

> possible. If you were walking upside down then you would fall from the earth, so it had to be the sun that moved.

In text 2 some of the crucial information is repeated, and during reading Kate returned once to a passage she had read before to check if the information was the same. There was nothing she didn't understand.

Text 1 was the last text Kate read. In her recall she reduced the text to "something about farmers and fishermen in Denmark" and a few details about the farming trade. She then mentioned four names that had been mentioned at the beginning of the text, and said that was all she could remember. The only thing she knew before was the names of the islands, so she learned something new. It was difficult to read, because it was so boring.

> Maybe it wasn't all that difficult, but I just couldn't make images of it, like what happened with the other one */i.e., text 2/*. It was difficult to remember and sort of difficult to engage in.

She had no trouble in answering all the content questions, so it was obvious that she needed some cues to organise the information she had gleaned from the text. Kate also stated, that she had read the first two texts more carefully, this one she just glanced through, because it was so boring, and reading three texts in a row was a bit too much. On the other hand, if this text had been homework she would have read it several times until she "had known almost every word", then she would have remembered more. By comparison the other two texts were more interesting, and they were something you wouldn't mind listening to if someone were to tell them. This one had no string of events.

Kate is a typically "good student", and she knows it. She is rather confident as to her own abilities, and she knows her likes and dislikes. If she likes the content of a text she reads it carefully and makes a good summary of the main ideas, if not she skims through the text, makes a poor immediate recall and needs cues in the form of questions to remind her of the content. The folk-tale is a different case. Kate has a good sense of story grammar, which she uses while recalling the events. But she fails to realise that some passages have a double meaning and the essence of the story is completely lost. The ending is interpreted as being a happy one, but it is a fairy-tale ending, and Kate accepts that without hesitation. Fairy-tales are for small children, so the text is childish. An otherwise "mature" reader Kate fails to catch the irony in a single word (in this case the word "pleased") and the story becomes flat, and without finesse. The same inability to catch things out of the ordinary is demonstrated in Kate's reading of text 2, where she does not mention anything about the metaphors that are used by the author to illustrate the earth movements. This could, however, be because Kate is familiar with the content already and needs no metaphorical "scaffolding" to understand the phenomena described in the text. She can account for the content in her own words, thus demonstrating her deep understanding of the text. This was not the case with text 1. Although the text type was familiar to Kate she was not interested in the contents. The interview situation was not significant to the ordinary regime of assessment in school (this was made clear to the students before the interview) so Kate judged it not serious to fail to recall the text. Furthermore, as this was the third text to read, she had reason to assume that I would give her some questions, which she would then be able to answer - quite in line with her status as a good student.

Kate's metacognitive competence is rather good. She knows what constitutes the differences between different kinds of texts, and she knows that there are two reading contracts - one for school texts, one for leisure reading. During the interview she claimed that she skimmed text 1 and that she read text 2 and text 3 more carefully. Her reading speed was 135 words/min for text 1, and 199 words/min for text 2. Text 3 was the longest of the three, and she used a speed of 232 words/min reading it. She did claim that she spent more time on text 3, because it was the first one, and the more you have to read the more difficult it is to keep up concentration. So, she has a rather high level of awareness as regards her reading, and it seems as if her cognitive monitoring is well developed, as is her self awareness. Like many skilled readers she cannot describe the reading process in any detail - it is automatised. The limitations in her metacognitive competence are, most likely, due to age. Several good readers in grade 5 in this material gladly accepted a fairy tale ending of text 3, and very few of them thought there was anything exceptional about text 2 - it was a text with facts like any other, only a bit easier to follow. Kate knows how to organise texts in memory for recall, her cognitive schema is well developed for narratives, but less well for expository texts. She uses imagery while reading and she makes inferences. However, she does not always catch what is written between the lines.

Case 2

John, 15, is a confident young man who does not mind having few friends - he likes to be on his own. His main interests outside of school are stamp-collecting and outdoor activities, such as fishing and mountaineering. He describes himself as somewhat of a dreamer, quite different from his six years older sister, who is more "down-to-earth". The two are very good friends, though. In school John prefers maths and natural sciences but is poor at arts and crafts. His classmates think he is a "swotter" or a bit queer because he likes to study. (In fact, without having asked, I was informed by a couple of his classmates that this is true, and that he is known to read "difficult books".) John spends a lot of time with his grandfather, because they share the same interests. In his spare time he likes to read, listen to music and occasionally watch television. John is determined as to his future: natural science studies at upper secondary school, national service as a signaller, and a university degree in civil engineering. He would like to join a technical profession.

John has some very definite strategies for studying, linked to different subjects. Learning comes easy to him, by reading but also by listening to his teachers. He uses different mnemonic devices, most of which include some imagery or visualisation technique. When studying for exams he uses his own notes, various papers provided by the teacher, other books on the subject, etc. He writes summaries and tries to structure old and new knowledge. For him it is easier to study and learn at home, because in school there is often too much noise, which makes it hard for him to concentrate.

John was a reader before he started to go to school. He got the urge to read when he saw some comic strips in a bunch of magazines. With the help of his parents he managed to learn and by the time he was 7, i.e., school age in Sweden, he could read complicated words (he gave me a seven-syllable example). John regards it a right for everyone to learn to read in school - those who have problems should get all the assistance they need, especially from their parents ("You have to do something about their parents, to make them read more to their kids"). If you cannot read you cannot cope in today's society - you'll be completely lost. Old-fashioned texts are John's favourite readings, such as heroic poems (Ulysses), Greek mythology, Icelandic sagas, etc. They are difficult but exciting and challenging and he needs a dictionary to make sure he understands. He reads slowly, because he doesn't want to miss one single word, and he "makes little pictures in his head" or images, that he sometimes continues to build on after he has finished reading. Sometimes he reads over again so as to make sure he has not misunderstood. He claims that he uses "silent speech" when he reads:

> Well, it doesn't show that I move my lips, but it feels like it.

That, of course, slows him down, but he claims that he has to "listen to the language", and he can't understand people who just seem to glance through a text - the language is as important as the content, he says. Sometimes, what he remembers from a text is a special passage, a quotation, a piece of dialogue, rather than the actual content. Occasionally, he reads some "whodunits", his favourite is a serial about a detective called Remo:

> They are formidable, the most terrible language you can imagine, a lot of violence, pornography, and all that, but I just love them. But they are quite harmless, anyway.

The text about Denmark was quite boring, thought John, but there was some new information in it. By coincidence, the very same day they were having an exam about all the Nordic countries, so the content was, at least in part, familiar to him. John made a brief summary of the text and included the most important items, no details, presented in the same order as in the text. He thought it was written in simple language, and he read it through more quickly than he would normally do. Apart from a geographical name, which was troublesome to pronounce (see above about his "inner speech"), there was nothing difficult about the text. Being as old as 15, he had some experience which helped him to understand and memorise the text.

Like Kate, John made a good summary of text 2, indicating that he had understood it fully. Asked for more details he mentioned one of the metaphors used in the text. He suggested an appropriate title for the text and said that, although this too was an exposition of facts, it caught one's interest more than text 1 and was quite well written. One characteristic was that the author used metaphors to illustrate certain phenomena about the earth's movements. This writing technique made the text more interesting, according to John. He also described how he went about figuring out the meaning of an unknown word ("toy-top").

> I figured it was a gadget that you put down on the floor and that circles around in a ring. The only thing I know that does like that is this gadget which I didn't know the name of before.

The content of text 2 was well known to John before, but he thought it was a bit "superficial". He also thought it would be easy to remember.

> Since it was about things known to me, which I had read about in school, I will probably remember it better than the first, but I don't know if I'll think about this particular text, rather about other things I've read on the matter.

Having read text 3 John commented that this was an old-fashioned story, which was difficult to give a title, but it was charming and funny. However, was there really any special message? Wasn't it just written as entertainment? As I insisted that there probably was some moral point, John suggested maybe it was "to stop old geezers from running after very young girls"! We conversed about some unusual words in the text, which caused him no problems (in his recall he actually used some unusual words that were not in the text). Further, we talked about how he tackled this text. You don't really have to think when you read this kind of text, said John, so you can read it quite fast without missing anything. However, he did read the first few sentences quite thoroughly, before he knew what it was about. Then he could speed it up. John did not miss the irony in the word "pleased". To him it was obvious that a man cannot marry a horse, so the resolution of the story must be that the girl made a fool of the squire and he was so embarrassed that he never thought of getting married again. This was predictable, as one got to the passage where the girl told the boy to fetch the horse.

The last text would be easy to remember, thinks John, because it is not written in such a way that you have to memorise details, it's not like facts. This is written so as to become a cohesive unit. From other texts you may remember the most important facts or details, if you put your mind to it, but stories are memorised in continuation.

John is a mature reader and his metacognitive competence is rather high, regarding his awareness and confidence of himself, as well as his monitoring abilities. He has a varied repertoire of conscious strategies for homework and exam studies, and his school results are generally very good. His reading speed is not very high - 220 words/min for text 1, and 268 words/min for both text 2 and text 3 (to be compared with 323, 487, and 653, respectively, for the fastest reader in grade 8, who is also a good comprehender), but he is aware of his own functioning, e.g., that he varies his speed during reading and uses "silent speech" - he claims that he finds it hard to "get into the text" unless he pronounces the words. Reading is an important pastime for John, his taste is sophisticated, and he enjoys not only the content but also the language of the texts he chooses to read. His recall protocols contain all the important items and he makes logical inferences.

Case 3

Aron is an outspoken 12 year old with various interests. He loves aeroplanes and some of his spare time is devoted to building models, but he also likes diving and carpentry and on weekends he sometimes works with animals on a farm. He likes to have things happen around him and claims he is quite talkative, but at times he likes to be on his own, too. English (the first foreign language taught in Swedish schools from grade 4) is his worst subject, and he is not too keen on physical education either. He likes maths, though, social studies and arts, and he knows a lot about aeroplanes and "electrical things". When he grows up he wants to be a pilot.

It was difficult for Aron to learn to read - he was not able to read when he started to go to school. He had some trouble with one eye (obviously a squint) but they had decided not to operate. He realises that it is important to be literate, because you can learn a lot by reading, you can read subtitles on foreign programmes on TV, and you can communicate with others by mail. Reading abilities can not be taken for granted, however; some people have problems and need more help. Because of his own reading problems, Aron learns best by listening to and watching others; he claims to be quite good at doing things with his hands, even to write. But he has to start doing his homework in proper time, since it takes long for him to read. Because of his somewhat impaired vision he needs big print (he doesn't wear glasses, though) He doesn't always understand what he reads:

> (*Do you normally understand what you read?*) So and so, one could say, it varies. Sometimes I don't remember at all, that is, if I read very fast then I feel a lot of stress, so I just understand a little. But if I read slowly and thoroughly then I remember exactly when I'm reading. And then afterwards maybe I just remember three things out of the whole book. (*You mean what you understand is what you remember?*) Well ... yes, that's it, that's the way it is. (*But, while you are reading, how do you know that you understand?*) Difficult question ... I read words, and I try to bang them into my head, that it's like that, and you must do like this, and I bang that in. And then I read something else and bang that in. And then I read a whole lot of other things which I don't remember, but maybe I remember the first things I read ... or the last things.

Aron describes the reading process in terms of technique, how decoding is done (example in chapter 6), and he returns several times during the interview to his understanding and memorising troubles. He knows that certain things in a text are more important than others, because "they come back", and he tries especially to memorise them. If he reads at all during his spare time it would be technical texts, but occasionally he might read a story, only it takes so long for him to get through a book, ten times as long as for his friends, he claims.

The first text Aron got to read during the interview session was text 1. He knew all of it before, he said. It was a typical "learning text", a bit monotonous but informative, easy to read, no difficult words. Aron's recall of text 1 illustrated his earlier statement about what he was likely to remember from a text - the beginning of the recall was well structured and contained the main points, the middle passages were all muddled, and the last were missing. He gave appropriate answers to the first content questions. When we got to the questions about the second half of the text during our content discussion he started to bring in his prior knowledge about Denmark, which had little to do with the text itself. He talked about tourism (incidentally an important source of income for the country but not mentioned in the text), about the oil fields in the North Sea, and the seals from Iceland that invaded the sea and ate a lot of fish. This kind of information was relevant to the topic but it was not in the text.

The content of text 2 was also familiar to Aron, in principle. In his recall he added facts about the "burning inner kernel" of the earth that was not included in the text. He said that this text was more interesting but also more difficult, there were some words he had to think hard about. He could easily explain about night and day, and the spinning of the earth around its axis (he knew because he had seen one of those table earth globes with a lamp in it), but he failed to explain about the earthly circle around the sun and, thus, what a year is. He understood why we can't perceive the earthly movements and talked about *our* magnetism, not the earth's, and our limited brain capacity in relation to phenomena in space. When asked what will remain in his memory he mentioned only facts that he knew before and that were not in the text.

Aron's inability to concentrate on reading for any length of time was accentuated in text 3. He spent 4 1/2 min reading the text (215 words/min, close to average speed for grade 5 in this material and for this text) and yet failed to recall but a few sentences from the first part of the text. He concluded his recall by saying that it all ends well. Aron's conception of this text was that it was "all one mess" and that there was no real sense in it. The author of this story intended to tell people how things were in the old days, when some were rich and some were poor. The old man was nice because he wanted to save the girl from poverty, he wanted to marry her and she said she thought it was a good idea. Then there was something about a mare and some people, but he couldn't make sense of it. The people seemed to think that she was no good, but the old man didn't want to get rid of her ever. Aron couldn't see any other meaning of the word "pleased" than just that - he was pleased with her. Although he failed to understand most of the text - and maybe he didn't really read all of it - he said that this was the easiest text of the three, because it contained no facts. He understood all the words but the story was mixed-up and confusing. Unfortunately, I did not ask who he referred to when he talked about "she" - I seem to have taken for granted that he meant the girl. Two weeks later, when the students were asked to write down what they remembered of the texts, he wrote: "it was too mixed-up". However, in his recall protocol *one year* later his response was:

> It was about a farmer who was going to get married but it went wrong and he married a horse-mare.

Aron is an intelligent boy, who is well aware of his reading problems. He can also deal with his problems. He is inquisitive and he learns a lot by listening to others, watching TV and spending time with adults. Maybe his problems have made him a little precocious. He answers all my questions conscientiously and with zeal, to the end. School is important to him, reading is necessary although time and effort consuming. Aron has not given up trying, yet. In middle school dyslectic children like Aron are still likely to get the assistance they need to cope with school work. Like most children with reading disabilities Aron has been well trained in decoding strategies, and that is how he describes reading - as a decoding process. When asked what he thinks about while he is reading he answers: "I think about *the reading*, about what I'm reading". I take that, together with the other statements concerning his reading as meaning that he concentrates on the decoding and that the content takes second place.

Aron's metacognitive competence is rather high - his self-awareness is high, his knowledge about his cognitive functioning, too. In fact, his self-knowledge is amazing - he seems to know what he knows and what he does not know; he knows what he is likely to remember and when he understands. The confusion of remember and understand is typical for his age. Some of his answers are very reflective, and he knows how to make connections between his prior knowledge and what he reads, although sometimes his prior knowledge takes the forefront. On the other hand, that is usually a good "patch-up" strategy in school - you answer a question by using sources of information you just happen to have come across, to conceal the fact that you have not read the texts presented by the teacher, and as long as the information is relevant you may get away with it. (Everybody knows it is a strategy often used by smart students on higher levels when they have not studied enough for an exam.) Only, in Aron's case it is for a different reason.

Aron knows what characterises different types of texts and he knows that repetition is a way for the author to single out important facts that are to be memorised by the reader. However, he fails sometimes to memorise them. His reading speed varies from 197 words/min for text 1 (the most "difficult" one according to LIX), to 280 words/min for text 2 (the "easiest" one) and 215 words/min for text 3, in other words a perfect match between text difficulty and reading speed. However, he thought that he read text 3 more quickly than the two others. Aron can not be regarded as a low-achieving student but he has serious reading problems, and his comprehension monitoring needs to be improved.

Case 4

Martin just had his 15th birthday and received his first moped, which he likes to tinker with in his spare time, apart from football and other sports. Most likely he will deal with some sport in the future, but he doesn't know about secondary education - no, he thinks not ... so he has no special plans for the future. In several subjects he is not doing as well as his mates. Swedish and social studies are worst, because he has this reading problem, it is hard to keep up. In sports and maths he is not doing too badly. When he listens very hard to the teachers and tries to concentrate in school he learns a lot, so he doesn't have to do so much reading at home. But if he does homework his mother helps him by asking questions. It is easier to learn outside school, because it is voluntary, one gets more interested. All the same, to be able to read is necessary, one has to read newspapers and get to know things, and one cannot but feel sorry for those who are not able to read, "because I know myself what it's like". Martin was not a pre-school reader and he can't remember how he learned to read. Throughout school he has been in a remedial reading programme and he thinks that has helped him, so that he now reads when he has to. Outside school he reads mostly comic magazines, maybe three times a week or so, very rarely a book, some thriller, perhaps. Martin has a very vague idea what it is to comprehend what one reads. One has to concentrate, that's for sure,

> ... and if you remember what you've just read then you have understood, haven't you? (*But what if you don't understand, what do you do then?*) I start all over again. (*And if that doesn't work?*) Then I

> just don't bother. (*So you don't persist?*) No. (*And you are not curious?*) No, not really. .

When he is reading for his homework he stops every now and then and underlines those words he thinks are important, and then his mother helps him. Sometimes he is successful at a test, sometimes not, and Martin doesn't know why. In general, his motivation for school work is low.

During the interview session Martin's first text was Text 3. It took him almost 5 1/2 minutes to read it through, but he did not find it too difficult. He suggested the story was about rich and poor but failed to characterise it ("It feels like it's come out of a good book"). His immediate recall was rather well structured but he skipped some crucial information - he simply missed it. The mare was left out altogether, and in his story the girl finally gave up her resistance and agreed to marry the old man. The wedding took place, everybody was happy, and happiest of all was the squire, who got what he wanted. So, the girl was fooled by the old man. The following is part of the conversation between Martin and me:

> (*I think you missed part of the text at this point. When the farmhand went to pick up the girl he actually took something else along, remember?*) It wasn't the girl really, it was another boy, wasn't it? (*No it wasn't the girl, that's right, the girl fooled the farmhand ...*) Was it another maid then? No, I don't know. (*The wedding guests were a bit astonished when they saw the bride. Why was that, you think?*) Because it was not what they had expected, that she would look like that ... the squire had probably been boasting about how beautiful she was and all that. (*The last sentence, about him being so pleased with her that he never went courting again, what does that mean?*) It means that he never married anyone else, that he was pleased with the one he had got.

He read this text right through, he said, but there was one passage he couldn't quite make out:

> It was where it was said that some of them pulled the head and some of them pushed from behind, I never got that to match the rest. (*Why not?*) Well, it didn't work, it doesn't sound right, I thought, I had to read that over again. (*Because there was one word you didn't understand.*) So, that's it ...

Martin never asked what word and what it meant - as if just to prove his point about not being interested. When asked whether he, while reading, was curious about how the story would end, he answered: "No, I just thought that's no concern of mine". He thought he would remember this text quite well in a few weeks time, but it would also depend on what he was thinking about otherwise.

Text 1 about Denmark was next. Martin performed a rather good recall including all the important information, presented in the same order as in the text, but he left out the last passage about the fishing trade. Most of the content was familiar to him, they had read about it before. He found the text rather interesting, and there was only one word he didn't know at first - "employ" - but he figured that out later on, what it meant. Because of a couple of references to olden days Martin characterised the text as "history". He gave good answers to the questions. When we got to the question about the fishing trade he talked about the oil platforms in the North Sea which spoil the spawning-grounds; information not mentioned in the text. When asked about how he knew what was important in this text he said it was more or less given in the text, the way it was written.

Text 2 was more complicated, he said, probably because the topic was difficult. He knew very little about it before, it was quite interesting, and "you always learn something new from every text you read". This kind of text would be found in a geography or social science book. Martin's recall of text 2 was less well structured than the earlier ones, he missed out on some points, and he had to use his hands to explain the movements of the earth. One of the metaphors, the one that takes the reader on to a slowly moving train, was mentioned by Martin without him connecting it to the phenomenon it was supposed to illustrate. This "thing with the train" was something he would remember, because he had experienced it himself. His answers to the content questions were sometimes a little vague, although he seemed to have caught the principles described in the text.

> (*Why does it seem as if the sun rises in the morning and sets in the evening?*) It's because the earth is moving, and when it's night here where we are, there is morning or evening on the other side of the globe.

Martin had some idea about the special features of this text:

> (*Did you stop reading at any point?*) Yes, I stopped once. It was when I got to that example with small kids who have some toy or other, that it moves around in circles ... I think it was there. (*How come the author has mentioned that, you think?*) So that one would be able to understand better or get some idea about how things work with the sun and the earth in reality.

Yet, Martin decided that the only difference between texts 1 and 2 was the topic, only, perhaps text 2 was somehow more "conclusive". In general, expository texts are more difficult to read, because you have to think back, sort of, with fiction it is different, like with text 3 you get more glimpses into real life, so it's easier to follow.

Martin has rather vague ideas about learning and reading. He can describe technically what he is doing when he is studying, and he knows that you have to concentrate and think about the content of the book, because the ultimate goal of reading is to understand. He is a rather slow reader (text 1: 188 words/min, text 2: 189 words/min, text 3: 180 words/min) who seems to use the same speed for any kind of text. Martin's comprehension test scores were lowest of all ninth graders'. Considering this fact, his performance during our session was surprisingly good. He made rather accurate recalls of texts 1 and 2, even if he left out some important information, and he demonstrated that he had comprehended most of these texts (admittedly, they were simple). With text 3 it was different - his recall was good for about two thirds of the text. Because he failed to read between the lines at one point, he misinterpreted the end of the story and gave it a resolution more to his taste, i.e., a realistic one: the old man married the girl and they were both happy. He clung to this interpretation in spite of my later attempts to make him think again. A glance at his recall protocol two weeks after the interview session[1] shows that he gave the same story, although a little shorter, with the same happy ending. For the two other texts, the same applies: Martin's later recall contains almost the same amount of facts as the immediate recall but fewer words (the second recall was done in writing). Actually, after two weeks he recollected what he had predicted, and a little more.

Thus, Martin's metacognitive knowledge about his own functioning has its flaws, he tends to underestimate himself, although he is right about his low reading ability. It seems, however, that he comprehends better in a situation free from stress - the test situation had a time limit, the interview situation had not. Apart from his failure to interpret the final part of text 3 (by coincidence, a failure he shared with some of the good readers) he answered all content questions satisfactorily. Without looking back into the text he was able to derive the appropriate information from it in order to answer the questions. Martin does not like school, his general achievement level is low, as are his ambitions and his expectations regarding what would await him in secondary school. The school system has provided him with special education without being able to raise his motivation. It is remarkable but not unusual.

Concluding remarks

Kate and John demonstrate a positive self-concept, like most confident readers, or good comprehenders (Taube, 1988). Their metacognitive competence is rather high (knowledge and awareness of learning and reading processes). They evaluate and monitor their reading in an efficient manner and consciously use various strategies for studying and reading. Kate's understanding of double meanings and metaphors may not yet be developed, but she makes appropriate inferences while reading. Her reading is highly automatised. John's reading is surprisingly slow, something he is well aware of, however. It may be interesting to note that on the working memory test he performed less well than the other good readers in his age group; there could be a connection. John regulates his reading speed according to text difficulty and familiarity and knows how to enjoy reading. He is particularly sensitive to the quality of written language.

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[1] This recall session, and a recall session one year after the first one, have not been dealt with in this thesis. They will be reported later.

Aron and Martin are less similar. Aron is a case of dyslexia, but he uses various strategies to learn. So far, he has not given up hope, his self-concept is rather positive and he has some plans for the future. What he manages to read and comprehend he will remember, although his working memory capacity is quite low, according to the test (chapter 10). He sometimes needs help when studying and is not too shy to ask for it. He knows that he does not always understand what he reads, but is vague about where it goes wrong. He uses patch-up strategies, perhaps unconsciously, but he makes intelligent choices about where to bring in his prior knowledge (Taylor, 1985) instead of what he misses out in reading. In some ways he does not fit into the full pattern of "poor readers", in other ways he does, for instance in his impaired comprehension monitoring and his emphasis on decoding. This emphasis becomes an obstacle to more efficient reading. Martin, on the other hand, demonstrates a negative self-concept to some extent. He has given up school, it is boring, and he has no future in it. His ideas about learning and reading are generally vague. He tends to underestimate himself - he performs better than he expects to do. His text schemata seem to work well (Pearson & Tierney, 1984). Martin shows some typical poor reading behaviour - he has an attitude of indifference to text, he does not predict what comes next, he skips what he does not understand (but he does know that this happens sometimes), if re-reading does not work (Bransford et al, 1984, Garner, 1987). To Martin confusion is the order of the day. Both Aron and Martin have received special training throughout school. It has most likely enhanced their reading development in the sense that they are now sufficient decoders (at least Martin is, about Aron I am not quite sure). What they need is to get away from the great emphasis on decoding techniques that much special education suffers from and develop their comprehension monitoring capacity.

Chapter 12

DISCUSSION

General summary of the results

A set of questions were outlined in chapter 1, questions to which we will now return. At the beginning of my research process the questions were rather clear-cut; from this end the answers seem very much intertwined like in a jig-saw puzzle. Nevertheless, I will try to separate some, if only to assemble them again towards the end of the chapter.

a) What conceptions do the students have of cognitive processes like learning and reading, and reading to learn? Are these conceptions related to age and/or performance level?

b) What qualitative differences are there between good and poor readers in study skills as described by themselves?

Among the students in my study learning has two dimensions - learning at school is not the same as learning outside the school context. "Learning" is something that only takes place within the confines of a school, or sometimes at home as homework assignments, this is a conviction especially common among the young students. When students "learn" they either memorise or understand something; so, memory is crucial to learning. Outside school you learn by doing, by following models or carrying something out the way somebody else tells you to, or it "just comes to you". This view is particularly common among the poor readers in the older group, who, to a large extent, see themselves as learning disabled. As a consequence they, in a sense, lead two separate lives - one in school, one outside school. The good readers normally do not give learning much thought; "learning comes easy to me" is a rather common statement among them regardless of age. Part of this learning ease has to do with their skill to pick up cues from the teachers as to what the game is about. If they do not get them they will ask for them: what exactly is important in a text, what kind of questions will be on the test, etc.

> If we are doing something difficult in maths and the teacher has gone through what we are to do, then I ask her to come to me separately and explain, because I think it's so very hard when she is explaining to the whole class. I try it out and then I can ask her again to make sure ... (8G)

Some poor readers testify to this inability to see through the foggy dew of rules that are inherent in most learning situations. One of these rules is that certain items in a text are more important than others, but it is often left to the student to decide what these items are:

> When I read I don't know what is important, so when teacher asks me to tell about the homework I include all the details, and the others get so tired of me (5P)

A deep approach to learning (Marton et al, 1977, Svensson, 1984) is not prominent in any of the groups, instead a surface approach is quite obvious, even among the best students. This is probably because they have found out at an early stage that a surface orientation is more effective. It seems that the higher you get into the school system the more rewarding it is to be able to play a good game of cramming - those who have learned to use their memory storage functions efficiently seem to come out on top. To some of the good students understanding is not important. For one thing, they know that more or less the same things will be repeated next year in a slightly different fashion, so they are likely to understand next time - that is how it always works, according to their prior experiences. Ergo, surface orientation pays off in school. At the same time, the skilled learners know that what they have learned this way will not stay:

> Of course I learn a lot at school, too, but you can't possibly remember everything. When you are studying for an exam ... one month afterwards its' all gone. (8G)
>
> I remember some books that I've read years ago. But geography ... my sister asks me about something we did in 4th grade but I can't remember, a capital or something, it's just disappeared. Then I look it up. (8G)

Facts are important. Questions are asked in such a way so as to trigger off the "right" answer. The smart students model the same technique for self-questioning when they study for a test or an exam ("and maybe you can ask yourself questions like 'how many inhabitants are there in the Soviet Union?'"). In the higher grades teachers often take for granted that integration of single facts into an understandable whole is done automatically in the students' heads. For most of the students this does happen; for those who do not see the connections most school knowledge becomes confusing, and learning is haphazard ("if I'm lucky it sticks on, sometimes it doesn't at all"). They do not have access to any efficient retrieval plans (Brown & Campione, 1979) for what they have read or heard, so they give up, or, as is the case with the poor readers in grade 8, they have given up already and have come to the conclusion that school is not for them.

It seems that the difference between good and poor readers is not in the way they conceive learning but in the way they handle it (i.e., cognitive monitoring), and how they perceive themselves as learners. The older students with good reading skills are more efficient learners than the young ones, they use a variety of study strategies in a purposeful way and they evaluate the outcome of their learning efforts (chapter 5). They know when they have studied enough to cope with a task, they also know when a task is too difficult for them. They either ask for more help or decide to leave it for now. All students have been training study techniques at some point, as part of the curriculum, but many of the poor readers have never really got the message, because the training includes the "that" and the "how" but hardly ever the "why" of each technique (Brown & Palincsar, 1982, 1987). In other words, they lack the procedural knowledge that they need to be able to transfer their knowledge into a real learning situation, one where they are not aided by prompts "now do this, and then do that" (Valencia, Stallman, Commeyras, Pearson & Hartman, 1991).

As concerns reading, good and poor readers describe it in different ways. To good readers reading is an intellectual activity that does not need much effort, and the point of which is to understand what is written by the author. Poor readers describe reading as something arduous, you have to struggle through letters and words and make sentences, but on top of that you also have to think of what it all means. Although the same elements are present in descriptions by good and poor readers, it becomes quite obvious that the emphasis is on technique for the poor readers and on understanding for the good readers. This is true for both age-groups, but there are more poor readers in grade 8 than in grade 5 who say they have to think when they are reading, or that they do not know what is happening because it is all automatic. The most thoughtful descriptions are given by some of the best and some of the poorest readers in the whole group (chapters 1 and 6), but in different terms.

Reading to learn is something that all students are involved in daily, with or without success. Texts are the major sources of knowledge in schools. To the good readers it is effortless and natural to extract knowledge from texts, at the same time they are the ones most likely to use alternative routes to learning, e.g., listening to the teacher and watching TV. A poor reader may sigh: I guess I learn best by reading, but it does not work very well. As if there is no other way. This implies that their learning strategies are not very efficient; by chance they happen to recall some of what they might have caught from the text. In other words, they have a rather passive approach to learning and to reading.

Comprehension equals remembering; you remember what you have read and you are able to answer questions based on it. This is the only way you know that you have understood, according to the poor and the younger readers. Among the experienced readers in grade 8 coherence is the key: if it "hangs together", becomes a meaningful whole, then you have understood. Part of superior reading skills is the ability to monitor your reading by using "fix-up" strategies when you notice that you do not understand, for instance, you reread a passage, look back - or forward - in the text for clues, change the speed, ask yourself questions, make predictions ("When I got to the passage where it said he took the horse, then I knew what was going to happen.") etc. This difference between good and poor readers in monitoring behaviour is well known from earlier studies (e.g., Garner, 1987), and it is one of the major set-backs in reading instruction. I have found that many of the poor readers know what to do to remedy comprehension failure, but they do not know that they know or how to effectuate their knowledge. This is only one example of their general tendency to underestimate their own capacity (see case 4 in chapter 11), because of their earlier history of school failure (typically, it is more common among the older students), it is quite understandable. It lead a couple of them, when introduced to the reading task during the interview, to exclaim: "I'll never be able to remember any of that, because my memory is so poor". The vicious circle of learning based on negative self-concept and expectations was all too evident in these cases, quite contrary to the esprit and confidence characterising some of the best readers in the older group. To them reading of these simple texts was "a piece of cake", right away they knew that the texts were written for younger children. A few of them took a glance at each text before they started to read, in order to find out what it was about: "this is geography", "this one is about the earth, should be more interesting than the other one", "it's a story, this one".

I did not systematically register such behaviour, but as I was performing the interviews I was able to observe regressing eye-movements, movements of head along with eyes, lip-movements in silent speech, following the line with a finger, etc. These were more common among the poor readers. Several students regardless of proficiency level had to be reminded that they had stopped at some point in the text, to look out through the window, to look back on the previous page or to look ahead. Most of them were not aware of it but did recollect after a while:

> (*How did you do when you read this text?*) I just read it through. (*Did you stop at any point?*) No. (*But I saw you stop here ...*) Oh yes ... (*What were you thinking of then?*) Well, I came to think of my dog, that I have to take him out for a walk when I get home from school.

Others had been thinking of a certain word and looked at another page for an explanation, or they had looked ahead to find out what came next or how much was left to read. There was hardly any difference between the subgroups in this respect. Rather, the difference was in talkativeness - some gave a whole range of things that they had been thinking of while reading. This could have been a compliance effect. However, after one round of questions some of the clever students had already figured out what this new game was about. "I read this text more carefully, because I knew you would ask questions".

All in all, the main difference between good and poor readers is in strategic behaviour: being aware of what needs to be done, carrying it out, evaluate the results and take action accordingly. What is missing in most poor readers is the procedural knowledge (Paris, Lipson & Wixson, 1983) or the monitoring part of metacognition (Brown, 1982, Flavell, 1979).

c) *Do cognitive and metacognitive competencies coincide within the individual for the same function?*

d) *If so, what are the differences between good and poor readers in the use of strategies and in awareness of the use of strategies?*

When metacognition became an object of research, based on studies made by researchers like Brown and Campione and Flavell and Markman[1] one of the most urgent problems to solve was how to separate cognition from metacognition (Borkowski, 1985, Bråten, 1991a, Brown & Campione, 1986). So far, the problem has remained largely unsolved and it is again demonstrated in my study, due to the fact that it rests on the somewhat unstable ground of verbal statements.

Reading is one of the functions that we do not have easy access to once they are established or automatised (LaBerge & Samuels, 1985). This is the most likely reason why some of the poor readers are comparatively well aware of the reading process, i.e., its technical side, they are struggling with it every day, and it is not automatic. In fact, that is part of their problem. For the more skilled readers the spontaneous answer "I just read" may be an indication of this inaccessibility. On the other hand, when prompted, several students, and in particular some of the very best readers, were able to give rather convincing descriptions of reading as an integrated process of technique and comprehension. This is congruent with results from other studies (e.g., Medwell, 1991). These students may have been wondering about what reading is and how it happens, which is definitely true about John (case 2 in chapter 11). He had been thinking about his inner speech and his concern with the "language" of a text, a concern he shared with some other good readers, who had something to say about why some books are more readable than others.

Even the poor readers are sometimes aware of the variations in readability. They know that expository texts call for more attention and more active elaboration and that they usually take longer to read; they know that a story has certain features that make them easy to follow and to recall; etc. But this knowledge about requirements and strategies does not help, because they do not possess the procedural knowledge to match. They may even adjust their reading speed according to the text, but it is hardly a conscious act, as is the case with the skilled readers. More often than not the poor readers claim to use the same speed regardless of text, although speed measures show that they do not.

Strategies for learning in general seem even more obscure, because learning can take on so many shapes and thus becomes more abstract than reading. Skilled readers are often skilled learners because they have learned how to learn, not only from text but from many sources. Part of their skill is in the purposiveness with which they enter into various learning situations, and generally there is a good match between their cognitive and metacognitive skills. This answers for their fluency in adapting to different learning situations. Conditions are different for the less skilled readers; they may possess some of the necessary cognitive skills and some of the metacognitive skills; what often is missing is the connecting link. Concerning the differences between age-groups it is a pervading theme in my study that the good readers in grade 5 are more similar to the poor readers in grade 8 than to the good readers in grade 8. This indicates three things; a) that the poor readers have developed since grade 5, b) that the good readers in grade 5 still have much to learn, and c) that the gap between good and poor readers is widening throughout school. We will return to this last point later.

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[1] Overviews in Garner, 1987 and Pramling (1987a)

e)• Are good readers more aware of differences between texts and text structures than poor readers? If so, how do they make use of this awareness?

There is no doubt that even the poor readers know that narration and exposition of facts require different "reading contracts". Especially the younger ones do read for pleasure in their spare time. They say it is easier, because they are not forced to do it, and they know it is less demanding than the reading tasks that are connected with school-work, because "you don't have to remember it". It is quite clear that motivation is very important here, even if it is difficult to explain what drives a boy like Aron (case 3 in chapter 10) to struggle with a book for two weeks, when he knows his friends would finish it in two days. Is it ambition to improve his reading skills ("I'm getting better all the time") or is it just for the satisfaction of having finished a book?

The more fine-tuned descriptions of text characteristics are delivered by the good students. Observations like "stories have dialogues", "facts are exposed in passages as if there were a heading for each, so that you know what is important", "this author sort of talks to the reader", "there is some figurative language so that one understands better", "in stories everything is connected", all come from good readers, mostly in grade 8. Without doubt they have had frequent and favourable encounters with various types of texts ever since they started to read before they went to school. Unlike most of their less skilled mates they still have positive reading experiences. As a reward for their swift accomplishments in school they get more interesting and stimulating literature to read, while the slower learners are toiling with the basic assignments. A parallel to the argument that, in the early grades, training of decoding skills often is emphasised at the expense of comprehension among students with reading problems (Brown, 1985, Garner, 1987).

As is the case with strategic behaviours the major difference between poor and good readers is in the way they handle their text structure knowledge. It is of little avail if you possess knowledge that cannot be put into use. There is some evidence in my study, however, that even poor readers are able to make use of text structure for stories (or story grammar) at recall, but that they have problems in recall of expository texts, where the structure is more complex or may even differ from one section to the next. They would need to be taught how to take advantage of text features, e.g., that important information often is presented at the beginning of each passage, that examples are given to clarify a superordinate principle, that there may be several arguments to form a conclusion, etc. The good readers in grade 8 have gained this knowledge by experience, they are not always aware of it but they can bring it out when needed.

In relation to the three texts that the students read in the interview session it is only to be expected that the good readers outperform the poor readers, as reading comprehension was one of the sampling criteria. Some of the poor readers were better at recalling the texts than expected, a few even expressed surprise at their own performance, that is, how much they could remember. The quality of their recalls varied, however. For text 1 about Denmark, the problem was in organisation of the facts presented, although both text type and content were familiar to them. This became evident in their answers to the content questions as well. Text 2, about the phenomenon of night and day, caused problems because of its content - it was not unfamiliar but it was complicated - rather than its structure, which was close to narrative but with some expository features. Recalls were short, because there was very little information. The factual errors in the answers seem to emanate from a combination of lack of prior knowledge and text comprehension failure. Especially interesting is that some of the less skilled readers gave answers that demonstrate their maintaining a misconception of reality that could have been rectified had they gained any new knowledge from the text (e.g., that the sun actually "comes up in the morning and goes down in the evening"). Practically all good readers of both age-groups did well here, but very few noticed the special features of this text, namely the everyday examples that were used to illustrate some principle. This could have been because they had understood the principle anyhow and did not need the examples. On the other hand, there were individuals in all groups who practised "horizontalisation", i.e., they remembered the examples rather than the principles (Wenestam, 1978, 1980). The folk-tale in text 3 with its story structure was easy to read and remember, according to most students. It did have its traps, though, which several of the poor and younger readers did not notice. They fell into the traps, because they failed to read what was written "between the lines", something that is common among poor readers, according to several researchers (e.g., Beach & Appleman, 1984, Brown, 1985, Lundberg, 1984, Pearson & Tierney, 1984).

In fact, some of the good readers in grade 8 in my sample also failed on this score - because it was a folk-tale anything was possible (so why shouldn't the old bugger marry the horse?) Those who had need for realism suggested a more credible solution: the girl took the easy way out and gave in to the pressure of money.

The mistakes made by both good and poor readers in answering the content questions point to yet another thing that students have to learn: not to take everything by face value. Texts may be faulty or ambiguous, either deliberately or by accident; sometimes you have to add your own experience, general or topical knowledge in order to understand; other times you should not - it would just confuse you; often you have to put your prior experience to the test. As Glazer (1992, Glazer & Brown, 1993) tells her reading-disabled students: reading is risk-taking, as a reader you have to challenge your knowledge and your skills.

f) Are poor readers inferior to good readers in all aspects of metacognitive competence, or are there areas of metacognition where the case may be reverse?

g) Do the poor readers know that they are "low-achievers", and, if so, do they know why?

h) Are the good readers aware of their superior abilities and how do they relate to them?

These questions are strongly related. First of all, nearly all the poor readers know that they do not perform up to standard in their respective classes. This kind of self-awareness is more pronounced among the older students, who have a long history of school failure to look back on. They define themselves as low-achievers to a larger extent than the young ones do (table 11), and the effect is emphasised by what they do not say outwardly, for instance in the low confidence they exhibit when answering the questions. Often they start with "I don't know", "I can't answer such questions", when in fact they can, with a little encouragement. Whether the poor readers know that their inferior reading skills is one explanation to their low achievements is not all that clear. In grade 5 six out of ten poor readers express their awareness of this; in grade 8 nine out of eighteen poor readers state this explicitly, whereas in five cases it is more of a hint. They describe their reading problems in various ways but do not seem to make the connection between learning problems in subjects like social studies or English and their reading difficulties.

The good readers are equally well aware of their superiority in learning, particularly in grade 8. The grade 5 students are less convinced, or at least less explicit. With a few exceptions the good readers have an air of confidence about them and they express themselves well. Their confidence is reflected also in their more specific (and often realistic) plans or ambitions for the future. It seems as if the good readers generally have a realistic self-image, whereas the poor readers tend to underestimate themselves in regard to performance level. However, there is no evidence that they describe themselves as less likeable human beings - again, they take care to keep their two lives apart, one in school, one outside school. The following example is from a poor reader in grade 8 who is very talkative and has a rather high level of awareness as regards reading, learning and self-image. In fact, he is one of the "mystery cases" in the sense that his comprehension capacity seems to be higher than his performance level, and the explanation for that may be his discomfort in school. We got into a conversation about this:

> (*So, what are your problems in school?*) Difficult to answer. I don't give it much thought. But it happens that I make a fool of myself, and then I get to hear about it for thirty years afterwards. But if someone else in the class does something foolish you're not even supposed to mention it. So, I think that is the worst problem. (*What about outside school?*) Well, I'm together with friends mostly from where I used to live before, but I've got friends all over town. I don't bother much with my school-mates.

In answer to question f) above, it could be said that in my material there are very few exceptions to the "rule" implied in the question. The good readers in grade 8 are superior in nearly all aspects I have studied; not only do they perform better, they are also aware of it. They have a realistic and positive self-concept, they are good at expressing themselves verbally. About them you could easily say that "nothing succeeds like success". For the poor readers in grade 8 the picture is not all that clear, although at least half of them are realistic about their performance level in reading and learning, to the extent that this awareness may become a hindrance. It is hardly an advantage to be well aware of the technical processes involved in reading and learning when you are not able to handle the techniques properly. It is not beneficial to the individual to know that you will flunk before you have even started to study for the exam. And what is the use of knowing that you can both comprehend and enjoy a text of your own choice if you never reach the point where freedom of choice is allowed, because you have to finish your assignments first?

Apart from the division of metacognition into knowledge (or awareness) and monitoring, as suggested by Brown and Flavell, there seems to be two types of metacognitive awareness. One has to do with the individual's thoughts and reflections about himself in relation to his social roles, as a person, as a learner or a performer of various activities in the different contexts where he dwells - a "social cognizer", if you like. The other is connected with particular situations where he is performing certain cognitive tasks, such as learning, reading, problem-solving, etc., where he is a "situated cognizer". As "social cognizers" good and poor readers differ marginally, when they do, it is mostly in terms of confidence, especially as regards the older students. As "situated cognizers" they differ more, and here the skilled readers in grade 8 stand out, they are particularly efficient monitors of their learning and reading. There is a good chance that the younger skilled readers will develop the same proficiency and leave their less skilled class-mates behind.

Task demands and students' abilities - a mismatch?

The goals of the school are not very obvious, at least not to the students and their parents, and teachers are not always able to make them clear. Teachers are free to make their own interpretations of the curriculum, even if it is sometimes done together with colleagues, and this freedom is growing as our national curriculum becomes less governing. For the student it is a matter of being able to guess what the teacher's goals are. Those who are good at this guessing game will be good students, the others will be confused, and their confusion is going to increase throughout school. In grade 8 some of the so called slow learners have lost all interest in school, because they have never been able to figure out what it is about, the hidden rules of the class-room game remain hidden (Bergqvist, 1990). Apart from the curriculum and the syllabi for various subjects the teachers have another factor to consider - the teaching materials. Many teachers view them as additional, instructional tools, and use them as such; others are inclined to follow them very strictly, so that, in fact, the main aim of the syllabus is to follow the book, and the book becomes the method at the same time. Authors of instructional books become the real interpreters of the curriculum, unless the teachers take a critical stance towards the materials. It is not common to have the students decide what books to use in school, but maybe it would not be a bad idea to listen to them sometimes. Many students in my study, good as well as poor readers, talked about "the boring school-books"; they do not see where the books fit into the syllabus because they do not know the syllabus.

There is a rather clear difference, in most aspects I have studied, between the two age-groups. No doubt, this is due to maturity and intellectual development. In grade 5 the differences between good and poor readers are not remarkable, even if they do exist in cognitive functioning and monitoring. A few cases of dyslexia are possible among the poor readers (although I have made no attempts at diagnosing this), other poor readers may be intellectually immature. From grade 5 to grade 8 the gap widens between the good and the poor readers, something that can not be explained entirely by intellectual deficits or dyslexia. There has to be something in the school environment that causes the poor readers in grade 8 to lag behind. In grade 5 in the Swedish school the teacher still has good control over her students, their abilities and their problems, and the students seem to be quite secure. Even the poor readers like school, they struggle to become better readers and they are convinced that they will be[2]. One aim for the teacher may be to "keep the flock gathered", so that no one feels left out; through piloting she makes sure that everyone is still on board, e.g., that they have fulfilled all the tasks, read all the passages in the book and understood the questions. These are the most obvious objectives, which all students can see. It means a clear focus on surface learning: learn by-heart, answer itemised questions, find the right answer in the book, do all the pages in the maths book, get as many points as possible on the test, etc. Those students who see beyond these immediate objectives do not really have to make an effort, they accept the terms and they are eager to help the teacher in fulfilling them, school is easy, no challenge. When they grow up they can quite as easily adapt to the new rules in the lower secondary school (from grade 7).

At this stage other conditions prevail; it is no longer one teacher's hidden goals that are to be fulfilled but several teachers' and in different subjects. The low-achievers have, at this point, found out that something is not quite right but they do not know what. Many of them soon give up, because the coping strategies they learned in primary school no longer work. The new situation is too complicated. Furthermore, functional reading abilities play an increasingly important role. The texts are longer and more difficult, there are more individual and independent reading tasks, an increasing amount of subjects and more specified subject matter. Teachers at this level tend to take for granted that the students know the basics, of which functional reading ability is one, efficient study technique another. Their control is not during reading but after, at the test or exam. The students have to walk this road on their own, nobody is likely to help them to choose the right strategies or to learn new ones (unless they are in a special education programme, something that is now becoming rather scarce). Many parents try to help their children (this is apparent in my study), but they find it hard. School is constantly in the state of change, and its goals are obscure, which opens up for speculations. Massmedia are ready to take the lead and interpret the goals, because school somehow is everybody's business.

The main difference between low and high performance level, then, is to be found in the inability of the low-performers to guess what the teacher wants to achieve. They have not set any goals of their own, they try to go along, but they have no ear for the music that is played in the classroom, they cannot find the right pitch. Because they are often poor readers they do not profit by the contents of the educational materials. They cannot utilise the books as shortcuts to the goals towards which the teacher is heading. They are quite well aware of their problems but do not know what to do about them. The high-performers, on the other hand, perform well because they have seen through the rules of the game. They utilise materials as well as teachers for their own benefit to reach goals that they have often set themselves, but they are also aware of the goals set by teachers and the curriculum. They demonstrate a purposeful behaviour - they know why they are doing this or that, they choose strategies according to the situation. Their intuition is well developed - if they feel that they are on the wrong track, they demand new cues from the teacher. In other words, they behave as mature "cue-seekers" (Miller & Parlett, 1974). Nothing is left to chance, they have found the short-cuts and they know what strategies pay off.

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[2] Case studies of low, medium and high ability students at primary levels in Denmark have shown similar results (Jansen, Johansen, Klewe, Lau, Pagaard, & Ziegler, 1992, Lau & Pagaard, 1991)

In international comparisons Swedish students are good readers. The IEA[3] studies carried out in 1991 place Swedish 9- and 14-year olds third among some 30 countries as regards reading comprehension (Elley, 1992). In an earlier IEA study in 1970 they ranked first and seventh, so the average reading ability in Swedish schools has remained high. There are, however, tendencies that the gap between the best and the poorest readers is widening[4]. It is not a new trend; such tendencies have been reported earlier in Denmark and Sweden, both in longitudinal (Dalby et al, 1983) and cross-sectional (Grundin, 1975) studies. These observations are made in large groups of subjects. In my study the group is comparatively small but the tendency is the same: the differences between good and poor readers are more pronounced in grade 8 than in grade 5.

There is one particular factor which I have not addressed in this thesis: the question of methods of reading instruction. One important reason for this is that the initial method ought to have very little impact on later reading development. I did not ask the students specifically, and if I had done, they probably would not have been able to answer - teachers do not usually motivate their choice of methods to the students. I did, however, ask them *how* the learned to read, but in as much as they mentioned anything about methods in answer to this questions, what they described was a part-to-whole instruction. Within the 1991 IEA-study a separate analysis was made of instructional practice[5]. It did not carry a heavy load in explaining the differences between countries; in fact, physical conditions of the school, accessibility of school library and availability of reading materials seemed to be more important. In the Nordic countries the polarised debate about teaching methods has been very heated from time to time. The IEA analysis, together with a similar analysis carried out on data collected in the recent Swedish national assessment[6], are indications that other teacher variables are more important than the instructional method per se, e.g., involvement, attitudes, and readership. Although it has not been proved - and it may be an impossible task to do so - rather than choice of method, it is a matter of consciousness and reflectiveness on the part of the teachers. Just like the students have to know what they are doing in learning and reading, how they are going to carry out the task, and why they are doing it, the same applies for the teachers: they have to know not only how to organise and carry out their teaching but also why they have chosen this particular course of action (Alexandersson, 1994). They need a high degree of consciousness and reflectiveness. They need this so as to guide their students through school, especially the students who cannot figure out on their own what school is about, and whose confusion increases while their performance level declines.

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[3] International Association for the Evaluation of Educational Achievement

[4] Taube, K. (1993) Reading comprehension among Swedish students: a comparative analysis of IEA studies from 1970 and 1991. *Scandinavian Journal of Educational Research 37*, 89-97

[5] Lundberg, I (1993) The teaching of reading in the Nordic countries. *Scandinavian Journal of Educational Research 37*, 43-62

[6] Häggström, I. (1993) *Svenska i årskurs. Huvudrapporten* (Swedish in grade 2. The main report) Skolverkets rapportserie nr 9. Stockholm: Liber Distribution

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Appendix 1

INTERVIEW QUESTIONNAIRE

A. Questions asked before reading of the texts

A1. About self

1. What do you think that other people think about you as a person?
2. Are there any differences between yourself and other people/your schoolmates? What kind of differences?
3. Have you got any brothers and sisters? Are there any differences between them and yourself? What kind of differences?
4. Is there anything you think is difficult to learn? What, for instance?
5. Are your achievements at school different from those of your schoolmates? If so, in what way? In what subjects?
6. What subjects at school do you find most difficult?
7. What makes that subject problematic?
8. What situations outside school are most difficult?
9. Try to make a description of yourself - as a person.
10. What are you doing best of all?
11. What particular interests do you have? What are you usually doing in your spare-time?
12. What are your plans for the future?

A2. About learning

13. In what way do you learn best?
14. How do you go about learning in school or when you are doing your homework?
15. How do you learn things outside school?
16. Where do you learn best - in school or outside? Why, do you think?
17. What do you remember best - what you learn in school or what you learn outside school?

A3. About reading in general

18. Were you able to read when you started to go to school?
19. How did you learn to read?
20. What is the point of learning to read?
21. How would it be, you think, if you could not read at all?
22. What do you think others think about people who can't read and write?
23. What do you think?
24. Do you usually understand what you read?
25. How do you know?
26. f you don't understand, what do you do then?
27. How would it be, you think, if you couldn't understand what you read?
28. What is reading? How/what do you do when you read?
29. What are you thinking about when you read? What happens inside your brain when you read?
30. How do you read a book/text that you have chosen yourself? Do you read that in the same manner as when you read school texts?
31. Do you remember such texts better than school texts? Why?
32. Do you ever tell your friends what you read in your spare time? Do you discuss what you read?
33. When you are reading a book, is there anything in particular that you take notice of?
34. Are there any special items that you remember better than other things? In that case, what? Why, do you think?
35. What kind of texts do you prefer to read?
36. How do you want a book to look or be like in order to feel like reading it?
37. How much do you read every week? Do you read every day outside school?

B. Questions asked after recall of each text

B1. Text characterisation

After reading each text

38. What heading would you give this text?
39. What kind of text is this?
40 What message do you think the author wanted to convey in this text?
41. How has he tried to convey his message? Has he used any special means to help the reader understand his message?
42. Did you know anything about this before? Did you learn anything new?
43. What did you think about this text?
44. Was it interesting? (Was it amusing/entertaining?)
45. Was it easy or hard to read? Why was that, you think?
46. Were there any words you didn't understand? Which words?

B2. Contents

After reading and recalling text 1:

70. What does the country Denmark look like? What kind of landscape?
71. What do people work with in Denmark?
72. What kind of natural resources does Denmark have?
73. How do the Danish people utilise their natural resources?
74. What kind of industries do they have in Denmark?
75. Why is it that agriculture is so important in Denmark?
76. Why did the farmers stop growing wheat at the end of the 19th century?
77. What did the farmers do instead?
78. In what way has the fishing trade changed on the west coast of Denmark in later years?

After reading and recalling text 2:

80. Why does it seem as if the sun rises in the morning and sets in the evening?
81. What movements is the earth making?
82. How can we observe that the earth is rotating?
83. Why did people in the old days believe that the sun moved across the sky and that the earth was standing still?
84. What is an astronomical day (in Swedish "dygn")? Could you explain to me what it means?
85. Could you explain to me what is meant by a year?
86. Why do we get leap-year and how often does it occur?

After reading and recalling text 3

90. Why did the squire want to marry the girl?
91. What did the girl think about that?
92. How was the girl's father going to make her agree to the marriage?
93. Why was the father so eager for the marriage to take place?
94. What did the girl do when the farm-boy came to pick her up?
95. Why did the boy at first refuse to do as his master told him? What did the boy think about his master?
96. What do you think the wedding guests thought, when they saw the "bride"?
97. What does the last sentence mean: "And the squire was so satisfied with his bride that he never went out courting again"?
98. How did it all end, and why did it end like that?

B3. Reading strategies

After reading each text

47. How did you go about reading this text?
48. Was there anything special you thought that you would remember? What? Why?
49. Did you go back in the text to read over again? Where? Why?
50. Did you stop reading at any point? Where? Why? What were you thinking then?
51. Did you think of others things than what was in the text? What, in that case?

After reading text 1

52. If you were to read this text as homework or for an exam, would you have read it in the same way? If not, how would you have done it?
53. Do you think that you would have remembered it better or less well had it been a school assignment? Why?
54. What in a factual text do you normally remember best?

After reading text 2

55. While you were reading, did you at any point think for instance "I've been wondering about this." or "I never thought it was like that"? If so, where?
56. Did you ever think that you had experienced or read about similar events? Where in the text?

After reading text 3

61. While you were reading did you ever wonder what would happen next, what would be in the next passage, or how it would all end?
62. Whereabouts in the text did you begin to understand how it would end?
63. Do you usually read texts like this one. Why/why not?

B4. Memory prediction, comparison of texts (for all texts)

57. Would you have been likely to read such a text if nobody had asked you to? In that case, would you have read it in the same way?
58. How well do you think you will remember this text in a couple of weeks?
59. What in the text do you think you will remember best?
(after texts 2 and 3)
60. What do you think about this text compared to the previous one? Was it easier or more difficult? Was it different in any way?/ In what way did this text differ from the previous one/s?
64. What kind of text is most difficult to read: facts (like text 1), faction (like text 2) or fiction (like text 3)? Why? What makes that kind of text more difficult to read or remember?
65. Which one of these texts will you remember best in a couple of weeks? Why?

Appendix 2

EXAMPLE OF CATEGORISATIONS

The outcome space for text 1

Q 38. What headline would you give this text?

A. A headline which fully covers the text content
B. A headline which partly covers the content
C. A headline which covers a specific part of the content
D. Don't know

Q 39. What kind of text is this?

A. The answer indicates that the text is descriptive exposition
B. The answer indicates that the text is an instructional text
C. The answer suggests a school subject to which the text refers
D. The answer describes in brief the content of the text
E. Don't know

Q 70. What does the country Denmark look like? What kind of landscape?

A. A relational answer
  A1. multi-dimensional
  A2. uni-dimensional
B. An assemblage answer
  B1. multi-dimensional
  B2. uni-dimensional
C. An answer that gives a faulty or non-committal description of Denmark
D. Don't know

Q 71. What do people work with in Denmark?

A. Analytical and/or inferential answers
B. Mentioning answers
  B1. multi-component
  B2. single-component
C. Beside-the-point answers

Q 72. What kind of natural resources does Denmark have?

A. Analytical and/or inferential answers
B. Mentioning answers
  B1. multi-component
  B2. single-component
C. Answers lacking distinction between source of income and natural resources
  C 1. reflective
  C2. mentioning
D. Faulty or irrelevant answers
E. Don't know

Q 73. How do they utilise their natural resources?

A. Answers related to previously mentioned natural resources
B. Answers without reference to previously mentioned natural resources
C. Answers where the relation to Denmark's natural resources is unclear
D. Don't know

Q 74. What kind of industries do they have in Denmark?

A. Analytical multi-component answers
B. Mentioning answers
  B1. multi-component
  B2. single-component
C. Unspecific answers
D. Don't know

Q 75. Why is it that agriculture is so important in Denmark?

A. Answers stating that the Danish economy is dependent on agriculture
B. Answers stating that people earn their living on agriculture
C. Answers stating that the fertile soil is Denmark's one and only natural resource
D. Answers stating that people depend on the soil to get food
E. Don't know

Q 76. Why did the farmers stop growing wheat at the end of the 19th century?

A. Reasoning answers
  A1. multi-dimensional
  A2. uni-dimensional
B. Answers establishing a fact
  B1. based on the text
  B2. irrelevant to the question
C. Unspecific answers
D. Don't know

Q 77. What did the farmers do instead?

A. Multi-component mentioning answers
B. Single-component mentioning answers
C. Unspecific answers
D. Don't know

Q 78. In what way has the fishing trade changed on the west coast of Denmark in later years?

A. Relational and/or inferential answers
B. Reproductional answers
C. Answers marginally related to the text
D. Don't know

Appendix 3 A

Text 1

Denmark is a country consisting of a large peninsula, Jutland, and many islands. The largest islands are Zealand, Fyn, Falster, Lolland, and Bornholm.

Denmark has no high mountains. Only a few hills and hillocks are rising above the fields. Almost all hills consist of nothing but earth, not of granite or other types of rock, like in our country. The highest point is in Jutland, and it is called Yding Skovhøj.

It is rare that the rock shows on the surface; when it occurs it is mostly in the form of limestone. It is white and very powdery. If you touch it you will get white dust on your fingers. This limestone makes the soil calcareous and very fertile.

Almost the whole of Denmark is covered with cultivated fields and meadows. Forest covers only 1/10 of the ground and contains mostly beech trees. The forests often look like large parks, where deer and roe are roaming about.

Denmark is the land of ferries and bridges. There was great improvement, when they started to transport goods in railway carriages onboard ferries without having to reload the goods in the harbours. Nowadays there are bridges across many of the straights, but the widest ones still have ferry traffic across, e.g., Store Bælt and Øresund.

Earlier the Danish farmers grew almost nothing else but wheat. It was sold to the countries in Western Europe, above all to Great Britain. But during the last part of the 19th century Russia and the USA started to sell large quantities of grain to these countries. It was the harvests from the Russian steppes and the American prairies which now could be sent to Europe. Steamships and railways made transportation of goods much cheaper than before.

Wheat became so cheap that it was no longer profitable for the Danish farmers to grow and sell it. Instead they started to grow fodder-plants, and they bought more animals, mostly cows, pigs and chickens. Cattle raising became the most important part of agriculture, and there was good money in the produce they could export; above all butter, cheese, pork (bacon), and eggs. These products still make out a large portion of the country's export.

The re-structuring of Danish agriculture has resulted in an expansion of the food industry. This is apparent in cities and townships. There you find large dairy factories, that take care of milk from the farms and make butter and cheese from it. Pigs and other livestock are sent to modern slaughter-houses, where the animals are slaughtered on a production line.

Danish industry nowadays employs more people than farming does. Just like in Sweden, many people move from rural areas into towns. It is not only the food factories there that give people work. Despite the fact that Denmark has no oil, coal, waterfalls or minerals, there exist important industry of various sorts.

The country has an excellent geographical location. It is situated close to the thickly populated areas of Western Europe and it is possible to transport both raw material and manufactured goods cheaply by sea. These are the main reasons why the Danes have managed to build up a large metal industry with manufacturing of different kinds of machinery, including agricultural machines for their own use. In many towns there are also different kinds of textile factories. There is an abundance of calcite and clay, and from these raw materials cement is made in large cement factories.

Along the west coast there were many little fishing villages in the old days. Now they are being depopulated and converted into holiday resorts. Instead the fishermen move into cities and towns with proper harbours. Because, in the old villages there are no harbours. There the fishermen have to pull up their boats on the beach after they have been to sea. Therefore, they can only use small fishing-boats. Nowadays they mostly want to carry out deep-sea fishing at Dogger's Bank in the North Sea. Then they need large boats with modern equipment. The fishermen often go up to the east coast of Britain to sell their harvest directly to the people there.

Text 2

You probably know that the earth has the shape of a globe, that the sun is shining on the earth, and that the earth rotates around its axis. Knowing this helps you to understand why there is daylight and darkness.

Our planet is always turning from west to east. It rotates around its axis. It takes 24 hours for the earth to spin around its axis once. We do not at all feel that it is moving. It seems as if the earth is standing still.

The sun is not going up and down as you may think. It is shining all the time on the earth. One side of the globe is always illuminated. The other side is always in the shade. While the earth is rotating the sunny side and the shady side are gradually changing position. When the place where you live is turned towards the sun it is daytime there. When the earth has rotated so much that the sunbeams no longer reach you, it gets dark. When it is night in our country and you are sleeping, people on the opposite side of the earth are awake and it is daytime there.

We can observe that the earth rotates by looking out from it. The view from the earth is different at different times of the day. In the morning we see the sun in the east. By noon the earth has gradually turned, so that we can see the sun standing low in the west. Finally, the sun disappears below the horizon. It gets dark. It is night.

The earth rotates from west to east. Therefore, the sun seems to move in the opposite direction. In fact, it looks as if the sun is moving and we are standing still.

No wonder people in the old days thought it was so. It took many years before the human being found out that the earth rotates like a coin or a toy top does when we set it spinning. For a long time people were certain that it was the sun that moved across the sky. And you can easily understand that they thought so. Sometimes it is hard for you to tell whether you move past an object or the object moves past you.

Have you ever been in a train and wondered to yourself: - Is this my train moving? Or is it the train on the other track that is moving? If your train starts out very slowly and without any jerk, it seems as if the train on the next track is moving and yours is standing still.

You have learnt what an astronomical day means. It is the time it takes for the earth to rotate all the way around its axis once. But if someone were to ask you how old you are, you would not say that you are 3527 days old. You would instead say how many years old you are. You measure your age in years.

The length of a year is measured according to another movement made by the earth. One year is the time it takes for the earth to travel in a wide circle around the sun. So, not only does the earth rotate around its axis, it also moves around the sun all the time, just like you are moving around the centre when you take a ride in a merry-go-round.

Small children sometimes have a toy called "spinning top", or just "top". If you have seen such a "top", you know that it spins quickly around when you set it off. But at the same time it moves slowly around on the floor, almost in a circle. Both the top and the earth make two kinds of movements. They spin around their axis and around in a wide circle. Some merry-go-rounds can do that, too, for example the one called "the whirlwind". Only, the earth does not spin that quickly.

You know that it takes 24 hours for the earth to spin once around its axis. 24 hours is one astronomical day.

It takes a little more than 365 days for the earth to travel all the way around the sun. Because it takes somewhat more than 365 days, we get an extra day every four years. That is what we call a leap-year. But otherwise, we say that 365 days make a year. So, a year is the time it takes for the earth to make one lap around the sun. This means that if you are 14 years of age, the earth has travelled fourteen times around the sun since you were born.

If someone were to ask you how you calculate your age, you would be able to say like this:

- I get one year older every time the earth has made one lap around the sun.

Text 3

Once upon a time there was a mighty rich country squire who owned a large estate. He had a lot of silver in his treasure chest and gold in the bank, but there was one thing missing and that was a wife.

One day he saw one of his neighbour's daughters working in the fields. The squire liked her very much, and as she was a poor peasant girl he thought that she would be more than happy to get married and that she would say yes at once if he proposed to her. So he said to her:

- I wouldn't mind getting married, and now I thought I would ask you to marry me!
- You may be thinking a whole lot, said the girl boldly. She really thought that the old man ought to think of something more proper than asking a young girl to marry him, old as he was.
- As I said, I thought you would become my wife, persisted the squire.
- No, thank you very much! she said. But thanks for asking, anyway!

The squire was not used to being rejected, so the more she refused, the more eager he was to get her. But the girl wouldn't listen at all.

So, the squire sent for the girl's father. He asked the farmer to try and bring her to reason and prepare for a wedding. If he did so, the squire would remit his debts and present him with a piece of land close to his property.

- All right, I'm sure I will be able to put her right, said the father full of hope. She's young and doesn't know what's best for her.

But no matter how he tried to persuade her with praise, flatter or threats, it was all in vain. She said that she didn't want the old miser, was he even buried in gold up to the tips of his ears.

The squire waited and waited, but finally he got annoyed. The next day he called on the wretched farmer and said that now he had to settle the matter immediately, if he expected the squire to keep his promise. Because now he did not intend to put off his marriage any longer.

The farmer saw no other alternative but to start preparing for the wedding. It was decided that when everything was ready and the vicar and the guests had arrived, the squire would send for the girl under the pretext that she was needed for some work or other

Once she was there, the squire thought, she would be so flattered and excited about the expensive wedding dress and the fine guests, that she would agree to marry him, because he really didn't think it possible that a poor peasant girl would dismiss such a rich man.

When all the guests had arrived, the squire sent for one of his farm-hands and ordered him to run to the neighbour's and ask him to deliver what he had promised.

- But if you don't come back with her instantly, he said and shook his fist, I'm going to . . .

No sooner had the squire finished the sentence than the boy rushed out as if chased by fire.

- My master has sent me to ask for the thing you promised him, said the boy to the farmer. But you have to hurry, because my master is very busy on a day like this.

- All right, run down to the meadow and take her with you! the girl's father responded.

The boy rushed down to the meadow, where the girl was raking hay.

- I was to pick up something that your father had promised my master, said the boy.

- Aha! thought the girl. Is that how it is!. And with laughter in the corner of her eye she said:

- Yes of course, it's our little maroon mare. You just go and fetch her! She's grazing on the other side of the pasture.

The boy rushed there, jumped onto the horse's back and rode home for all he was worth.

- Did you bring her? asked the squire.

- She's outside the door, said the boy.

- Show her to the room that used to be my mother's while she was alive, said the squire.

- But I can't do that! said the boy.

- Do as you're told! ordered the old squire. And if you can't persuade her you'll have to ask someone to help you.

As the boy saw his master's face, he knew there was no point in arguing. So he asked some friends for help. Some of them were pulling the mare's head and others were pushing her from behind, and finally they managed to manoeuvre her up the stairs and into the bedroom, where they tied her to the bedpost by her bridle-straps. The wedding dress, the bridal crown, and the wedding bouquet were on the bed awaiting the bride.

- Well sir, now it's all set, said the boy as he returned to his master. He wiped his forehead and groaned:

- This was the toughest job I've carried out while I've been working at this farm.

- Hold on! You haven't done it for nothing, said his master. He took out a sliver coin from his pocket and gave to the boy. Now tell the maids to go upstairs and dress her!

- But that's impossible! said the boy.

- That's none of your business! the squire hollered. Tell them to put on the wedding dress, and see to it that they don't forget the crown and the bouquet!

The boy rushed downstairs into the kitchen.

- Listen to this, girls! he shouted. The master's gone barmy! He wants you to dress the maroon mare as a bride. I think he's going to play a joke on his guests.

The girls roared with laughter but ran upstairs and dressed the mare in all the niceties lying on the bed. After that the boy went to his master and said that everything was ready, bridal crown, wedding bouquet and all.

- Splendid! Take her downstairs, then! I'll meet her myself by the door, said the squire.

There was clamping and bumping as the mare was brought down the stairs. Then the door opened wide to the grand hall, where the vicar and the wedding guests stood waiting.

In strode the maroon mare, dressed as a bride with the bridal crown hanging on one ear.

The vicar gasped for breath and the guests burst out laughing.

As for the squire, it is said that he was so pleased with the bride that he never went out courting again.

1. Responses to Q2: Are there any differences between yourself and other people/your schoolmates? What kind of differences?

Grade 5 good readers
Almost everything differs.
I'm one year younger.
I'm more troublesome than most kids of my age.
Some people are far behind at school, others are more advanced, that's the way it is.
I have a different personality, I do things differently.
I sulk easily, the others are teasing me.
Some have Swedish parents, I haven't.
Learning comes easy to me.

Grade 5 poor readers
I think differently, I do other things sometimes.
I'm very quiet sometimes.
I don't play the same games, like playing marbles.
The others don't dare say anything, but I comment on matters quite a lot.
Some people don't like each other, they fight; and they don't want me to play football, because they say I'm no good at it.
I always get so dirty, because I'm a goalkeeper.
Sometimes I'm nicer than the others.

Grade 8 good readers
I think I'm more inside the house than others.
When I work, I really go for it, it depends on how I feel. And if there is something that the whole class thinks is bad, I always comment on it - the others don't dare say anything; sometimes I get punished for it, sometimes I get credit.
It depends on who you compare with.
In my class I feel more mature than most, there are so many different personalities, some are childish, others are more mature.
Many differences, too much to mention, really.

Grade 8 poor readers
People have different ways about them.
I'm quite silent in school, and the others are noisy and loudmouthed.
I don't like to be in gangs like the others.
The difference is that I'm always alone, and that I'm kept out by the others. I don't care if they are teasing me, only they don't think it's teasing, but it feels bad for the person who is up against it.
I'm more talkative and joyful, and I have a different hobby, speedway.
I'm just too nice.

2. Responses to Q6. Subjects and parts of subjects that are regarded as difficult

Gr 5G	Gr 5P	Gr 8 G	Gr 8P
Maths	Swedish	German	English
Swedish	(reading,	(grammar)	(vocabulary,
Music	spelling)	Sloyd	pronunciation)
(reading	English	Maths	Social studies
notes)	(pronunciation)	(single items)	Swedish
	Geography	Physical Education	(reading,
		Drawing	spelling)
		Computers	Maths
		Geography	Biology
		Physics	Physics
		Chemistry	
		German	

3. Responses[1] to Q 10. What are you doing best of all?

School activities

Gr 5G	Gr 5P	Gr 8G	Gr 8P
English	Maths	Swedish	PE
Sloyd	PE	Languages	Maths
PE[2]	Social studies	PE	Drawing
Social studies	Nature studies	Music	Nothing
Nature studies	Technology[3]		
	Writing	Technology	
Drawing	Drawing	Learning	English
Maths	History	Practical subjects	
	Answer questions	Drawing	
	Swedish	Maths	
		Physics	

Out-of-school activities

Gr 5G	Gr 5P	Gr 8G	Gr 8P
Football	Football	Music	Football
Horse riding	Computers	Handball	Basketball
Drawing	Boats	Football	Handball
Judo	Aeroplanes	Listening	Horse riding
Carpentry	Electric things		Speedway
Writing	Reading		Table tennis
			Mechanics

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[1] Responses are sorted in two lists in order of frequency; one for school-based activities, one for out-of-school activities. Each student may have mentioned more than one item.

[2] PE = Physical Education

[3] In the Swedish compulsory school "teknik" (technology) is a subject where the students learn how to manage simple everyday technology,

4. Responses to Q11. What particular interests do you have? What are you usually doing in your spare time?

Gr 5G
Sports:
Football
Judo
Handball
Gymnastics
Running
Cycling
Basket ball
Horse riding
Music:
Violin
Flute
Animals
Model-making
Be with friends
Drawing
Reading

Gr 5P
Sports:
Football
Handball
Skiing
Running
Sailing
Basket ball
Volleyball
Tennis
Golf
Horse riding
Music:
Piano
Oboe
Computers
Mechanics
Model-making
Carpentry
Museums
Scouting
Play with friends
Letter writing

Gr 8G
Sports:
Football
Handball
Jogging
Mini golf
Cycling
Mountaineering
Fishing
Motocross
Music:
Piano
Guitar
Flute
Listen to music
Jazz ballet
TV watching
Reading
Letter writing
Diary writing
Stamps
Language
Cinema
Film making
Computers
Acting
Be with friends
Cooking
Do homework
Drawing
Painting

Gr 8P
Sports:
Football
Running
Skiing
Table tennis
Cycling
Bowling
Basket
Speedway
Horse riding
Diving
Be with friends
Computers
Baby sitting
Dog walking
Mechanics
Cooking
Farming
Gardening
Letter writing
Homework

5. Responses to Q12. Students' plans for their future.

Gr 5 G
Work with animals (girl)
Become a better violinist and get a good education (girl)
Professional footballer (boy)
Get a good education and become a professional footballer(boy)
Fashion designer and teacher (girl)
Prime-minister (girl)
Station-master (boy)
Lawyer or child-care worker, and have fashion design as a hobby (girl)
Work at a zoo, or be a singer (girl)
Go to Ethiopia and work with sick people as a nurse or a doctor (girl)
Work with computers, computer engineering (girl)

Gr 5 P

Buy a flat, work with computers (boy)
Farmer (boy)
Pilot (boy)
Don't know (girl)
Don't know (girl)
Don't know, have never thought about that (girl)
Policeman (boy)
Nurse (girl)
Work with animals, become hairdresser or model (girl)
Professional footballer (boy)

Gr 8 G

Upper secondary (natural science), do military service as a radio officer, then university studies in engineering (boy)
Something to do with sports, professional football coach, maybe (boy)
Upper secondary, then don't know (boy)
Don't know, too boring to do the same thing year in year out, want to do various things, perhaps become an actress (girl)
Two-year upper secondary, then work abroad, maybe in advertising, decorating or making commercials (girl)
Upper secondary, then work with languages and communication abroad, maybe advertising (girl)
Nurse (girl)
Very uncertain, upper secondary (languages) "but I know what I don't want to do: factory, bank or office work, rather something to do with people, and to develop myself." (girl)
Four-year college of technology, then engineering (boy)
University studies (boy)
Nursing (girl)
Upper secondary, then laboratory assistant (boy)
Upper secondary, then primary school teacher (girl)

Gr 8 P

Two-year upper secondary, don't know which, then just get a job (girl)
Technician (boy)
Don't know, haven't thought that far ahead (boy)
Don't know, work with children (girl)
Nothing special, upper secondary, maybe motor mechanics (boy)
Haven't thought about it, possibly work with children at day-care centre (girl)
Two-year upper secondary, then something to do with the army (boy)
Hard to say, "I'll take it as it comes", upper secondary (nursing), work with children (girl)
Don't know, haven't thought about it (girl)
None. "I have to do something, but I don't know what ... get a job, I suppose" (boy)
Upper secondary, industrial school at SAAB, then aeronautical technician or else restaurant school, become a chef or a restaurant manager (boy)
No plans, something to do with sports, perhaps, no upper secondary, haven't decided yet (boy)
Upper secondary, then get a good job, maybe run a sheet-metal workshop (boy)
Upper secondary, then speedway professional or motor mechanics (boy)
Upper secondary, something to do with drawing (girl)
Nursing, work at an old people's home (girl)
"Upper secondary two-year, "thought of being a painter, but I'm allergic, so ... floor-layer, perhaps" (boy)
Upper secondary, nursing, "... if I can make it, my marks are low" (girl)

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